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NOVITATES ZOOLOGICAE.

A Journal of Zoology.

EDITED BY

THE HON. WALTER ROTHSCHILD, PH.D.,
DR. ERNST HARTERT, AND DR. K. JORDAN.

VOL. XVII.

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VOL. XVII.

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WALTER ROTHSCHILD, ERNST HARTERT, and KARL JORDAN.

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VOL. XVII., 1910

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THE HON. WALTER ROTHSCHILD, PH.D.,

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(WITH FIFTEEN PLATES.)



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NOVITATES ZOOLOGICAE.

Vol. XVII.

MARCH, 1910.

No. 1.

CATALOGUE OF THE *ARCTIANAE* IN THE TRING MUSEUM, WITH NOTES AND DESCRIPTIONS OF NEW SPECIES.

By THE HON. W. ROTHSCHILD, Ph.D.

I HAVE arranged my *Arctianae* according to the *Catalogue of the Lepidoptera Phalaenae in the British Museum*, vol. iii., this being the most recent work on the family as a whole. I have, however, included the three genera *Gonotrephes*, *Antaxia*, and *Neozatrephes*, placed by Sir George Hampson among the *Syntomidae*, because I consider these genera, in spite of the absence of the costal vein of the hindwing, more nearly allied to the *Arctianae* than to the *Syntomidae*. Considering the great use and importance to lepidopterists of the British Museum Catalogue, it is to be regretted that not sufficient distinction has been emphasised between **Subspecies** and **Aberrations**. In several instances Sir George Hampson has correctly separated the subspecies, but in by far the larger number of cases he has united them indiscriminately under the term "aberration." It cannot be too often reiterated that a **Subspecies** is a local race or geographical representative of a given species, in which the variation from the "type" is more or less uniform and constant: on the other hand, an **Aberration** is a sporadic or individual variation occurring among the typical individuals, and in which, even if several specimens occur, the variation from the type is rarely if ever uniform and not persistent. A difference from the type, however small, if confined to one locality and to the bulk of or the whole of the individuals from that locality, is sufficient to separate this group of individuals as a subspecies; but, be the difference ever so great, if it is purely individual, not confined to any one locality, and occurs casually with the typical form, it can only be considered an aberration, and, in my opinion, should **not** be named. Subspecies, on the other hand, should be named trinomially, thus: *Arctia caja americana*.

I have, in the body of this catalogue, given the localities, in many cases, in an abbreviated form, in order to save time and space. I here enumerate the principal localities and dates, in full. They are arranged from north to south eastwards, returning northwards and westwards.

Gold Hill, Oregon, September 1900 (Biedermann).

Durango, Colorado, 1901 (E. J. Oslar).

Glenwood Springs, Colorado, June 1901 (E. J. Oslar).

Grand Junction, Colorado, July 1901 (E. J. Oslar).

Fort Garland, Colorado, 1901 (E. J. Oslar).

Almosa, Colorado, 1901 (E. J. Oslar).

Prescott, Arizona, July 1902 (E. J. Oslar).

Nogales, Arizona, April—September 1903 (E. J. Oslar).

- Hnachuco Mountains, Arizona, August 1901 (Brenninger), and August 1903 (E. J. Oslar).
- Cuernavaca, Mexico, September 1904 (Dr. Gadow).
- Huamantla, Vera Cruz, Mexico.
- Orizaba, Mexico, March 1896 (W. Schaus).
- Jalapa, Mexico, May—June 1897 (W. Schaus).
- Vera Cruz, Mexico.
- Guadalajara, Mexico, October 1896 (W. Schaus).
- Holguin, Cuba (H. S. Parish) and (Tollin).
- Newcastle, Jamaica, October 1893 (Taylor).
- Ciudad de Guatemala (Rodriguez).
- San Ramon, Rio Wanks, Nicaragua, 175 ft., May—June 1905 (M. G. Palmer).
- Jinotega, Nicaragua, 4100 ft., January 1906 (M. G. Palmer).
- San José, Costa Rica, May 15—June 10, 1899 (Underwood).
- Costa Rica, 1500 m. (M. de Mathan).
- Cartago, Costa Rica, June 1899 (Underwood).
- Asahar de Cartago, Costa Rica, February 1899 (Underwood).
- Escazu, Costa Rica, August—October 1903 (Underwood).
- Carablanco de Sarapiquí, Costa Rica (Underwood).
- Carreblanco, Costa Rica (Lankester).
- Bogava, Chiriquí, 800 ft. (Watson).
- Bouqueté, Chiriquí, 3500 ft. (Watson).
- Vulcan de Chiriquí, 5000—9000 ft. (Watson).
- Tobago, March 1897 (Dr. Percy Rendall).
- Trinidad (F. Birch).
- Port of Spain, Trinidad, January 1897 (Dr. Percy Rendall).
- Belmont, Port of Spain, Trinidad (E. Lafond).
- Caparo, Trinidad, December 1905 (S. M. Klages).
- San Fernando, Trinidad.
- Maraval, Trinidad, July 1891.
- Tabaquite, Narieva District, Central Trinidad.
- St. Anne's, Trinidad (F. E. Tryhane).
- Onaca, Sierra Nevada de Santa Marta, 2200 ft. (wet season), September—October 1901 (Engelke).
- Cucuta, Venezuela.
- Merida, Venezuela, November 1898—March 1900 (Briceño).
- Tachira, Venezuela (Briceño).
- Valencia, Venezuela.
- Suapure, Venezuela, May 1899 (S. M. Klages).
- Palma Sola, Venezuela, 1896 (Whytman).
- Patao Guiria, Venezuela, August 1891.
- Ciudad Bolivar, Venezuela, September—December 1898 (S. M. Klages).
- Maipures, Orinoco, Venezuela, December 1898 (Cherrie).
- Guyapa, Caura River, Venezuela, November 24—December 10, 1902 (S. M. Klages).
- Maripa, Caura River, Venezuela (S. M. Klages).
- La Vuelta, Caura River, Venezuela, June 1903 (S. M. Klages).
- La Union, Caura River, Venezuela, September 1901—May 1902 (S. M. Klages).

Wakenaam Island, British Guiana.

Essequibo River, British Guiana (B. Duffus).

Tumatumari, British Guiana, December 1907 (S. M. Klages).

Rio Demerara, British Guiana.

Christianaburg, Rio Demerara, British Guiana.

Omai, British Guiana, June 1908 (S. M. Klages).

British Guiana (bought at George Town, Rev. M. Whitford). (This collection was one made up of several lots sent for sale by the miners at Omai, and caught at the electric light ; it contained a remarkable number of great rarities.—W. R.)

Bartica, British Guiana, June 1901.

British Guiana (B. Duffus).

Potaro, British Guiana, May 1908 (S. M. Klages).

Aröewarwa Creek, Maröewym Valley, Surinam, Dutch Guiana, April 1905 (S. M. Klages).

St. Laurent de Maröni, French Guiana (Le Moul't père and E. Le Moul't).

Obidos, Lower Amazons, Brazil, October—November 1904 (M. de Mathan).

Itaituba, Rio Tapajös to Obidos, Amazons, Brazil, January—April 1906 (W. Hoffmanns).

On board steamer between Manicapurei and Tefö, Amazons, Brazil, April 1906 (S. M. Klages).

Tefö, Upper Amazons, Brazil, June 1906 (W. Hoffmanns).

Tefö, Upper Amazons, Brazil, September 1907 (M. de Mathan).

Santo Antonio do Javary, Upper Amazons, Brazil, June 1907 (S. M. Klages).

Fonte Boa, Upper Amazons, Brazil, May 1906 (S. M. Klages).

Codajas, Upper Amazons, Brazil, August 1907 (S. M. Klages).

Calama, below Rio Machados, Rio Madeira, Brazil, August—October 1907 (W. Hoffmanns).

Hunmayta, Rio Madeira, Brazil, July—September 1906 (W. Hoffmanns).

Allianca, below San Antonio, Rio Madeira, Brazil, November—December 1907 (W. Hoffmanns).

Minas Geraës, Brazil, October 1900 (Kennedy).

Rio de Janeiro, Brazil (E. May).

Corcovado, Brazil (W. Schans).

Castro Parana, April 1898 (E. D. Jones).

Rio Grande do Sul, Brazil.

Elsenau, Rio Grande do Sul, Brazil, February 1905 (Dr. Martin).

Sapuay, Paraguay, November 1903—January 1905 (W. Foster).

Patino-cué, Paragnay, January—May 1904 (Montforts).

Salta, North Argentina (J. Steinbach).

Tucuman, April—May 1905 (J. Steinbach), and May 1902 (Dinelli).

Ciudad de Tucuman, March 1903 (L. Monetti).

Buenavista, East Bolivia, 750 m., August 1906—April 1907 (J. Steinbach).

Santa Cruz de la Sierra, East Bolivia, 1905—1906 (J. Steinbach).

San Ernesto, Bolivia, 1000 m., 68° W., 15° S., August—September 1900 (Simons).

Charaplaya, Bolivia, 1300 m., 65° W., 16° S., July 1901 (Simons).

Rio Solocamé, Bolivia, 1000 m., 67° W., 16° S., January 1901 (Simons).

Rio Songo to Rio Snapi, Bolivia, 1100 m., March—June 1896 (Garlepp).

Yungas de Coroico, Bolivia, 1800 m., October 1896—March 1897 (Garlepp).

Cajan, Cuzco, Bolivia, November 1901 (Garlepp).

Upper Rio Toro, La Merced, Bolivia, 3000 m., August 1901 (Simons).

Chulumani, Bolivia, 2000 m. (beginning of wet season), December (Simons).

Rio Tanampaya, Bolivia, 1894 (Garlepp).

Chimate, Bolivia, 750 m., September 1900 (Simons).

Cuzco, Bolivia, April 1901 (Garlepp).

Yungas de la Paz, Bolivia, 1000 m., September 1899 (Garlepp).

Rio Sincuri, South-East Peru, 2500 ft. (dry season), June 1901 (G. R. Ockenden).

Carabaya (various localities, 2500—6000 ft.), June 1904 (G. R. Ockenden).

La Oroya, Rio Inambari, Carabaya, South-East Peru, 3100 ft. (wet season), March 1905 and (dry season) September 1905 (G. R. Ockenden).

Rio Inambari, Carabaya, South-East Peru, 6000 ft., November 1901 and 1902 (wet season) (G. R. Ockenden).

La Union, Rio Huacamayo, Carabaya, South-East Peru (wet season), December 1904 (G. R. Ockenden).

Rio Huacamayo, Carabaya, South-East Peru (dry season), June 1904 (G. R. Ockenden).

Tinguri, Carabaya, South-East Peru, 3400 ft. (dry season), August 1901 (G. R. Ockenden).

Santo Domingo, Carabaya, South-East Peru, 6000 ft. (dry season), October 1902 and July 1904 (G. R. Ockenden).

La Union to Santo Domingo, Carabaya, South-East Peru, 2000—6500 ft., December 1904 (wet season) (G. R. Ockenden).

Oconeque, Carabaya, South-East Peru, 7000 ft. (dry season), July 1904 (G. R. Ockenden).

Agualani, Carabaya, South-East Peru, 9000 ft. (wet season), May 1904 (G. R. Ockenden).

Limani, Carabaya, South-East Peru, 9500 ft. (dry season), May 1904 (G. R. Ockenden).

Marcapata, East Peru, 4500 ft. (G. R. Ockenden).

Caradoc, Marcapata, East Peru, November 1901 (G. R. Ockenden).

Chiri-Mayo, South-East Peru, 1000 m. (dry season), July 1901 (G. R. Ockenden).

Rio Chuchurras, Rio Palcazu, Peru, 320 m. (W. Hoffmanns).

Palcazu, Department of Junin, Peru (Sedlmayer).

Pozuzo, Huancayo, Peru, 800—1000 m. (W. Hoffmanns).

Huancabamba, Cerro de Pasco, Peru (E. Boettger).

Chanchamayo, East Peru, 2100—7500 ft.

Chanchamayo, East Peru (Schuncke).

Pebas, Upper Amazons, Peru, November 1906 (M. de Mathan).

Cushi, Province Huanuco, Peru, 1900 m. (W. Hoffmanns).

Rio Mixiollo, Province Loreto, Central Peru, June — December 1900 (G. A. Baer).

Rio Colorado, Peru, 2500 ft., August—September (Watkins).

El Porvenir, East Peru, 900 m., April 1908.

Oxapampa, North Peru.

Lita, Ecuador, 3000 ft. (Flemming).

Quito, Ecuador (W. Goodfellow).

Pambilar, Ecuador (Flemming & Miquetta).

Corondalet, Ecuador (Flemming & Miquetta).

Quevedo, West Ecuador (von Buehwald).

St. Javier, Rio Cachabi, West Ecuador, 60 ft. (Flemming & Miquetta).

Rio Cayapas, North-West Ecuador (Flemming & Miquetta).

Salidero, North-West Ecuador, 350 ft., February 1901 (Flemming & Miquetta).

Rio Durango, North-West Ecuador, 350 ft., February 1901 (Flemming & Miquetta).

Paramba, Ecuador, 3500 ft., January—June 1897, November—December 1898, and January—July 1899 (W. Rosenberg).

Cachabé, Low Country, Ecuador, November 1896 (W. Rosenberg).

Bulim, Ecuador, 160 ft., December 1900—February 1901 (Flemming & Miquetta).

Suno, Upper Rio Napo, Ecuador, May 1899 (W. Goodfellow).

Coca, Upper Rio Napo, Ecuador, May—July 1899 (W. Goodfellow).

Rio Tiputini, Rio Napo, August 1899 (W. Goodfellow).

Rio Dagua, W. Colombia (W. Rosenberg).

Popayan, Colombia (Lehmann).

Purnio, Colombia, 28 m. (end of rainy season), October—November 1896 (Dr. Bürger).

Cananebe, Cundinamarca, Colombia, September 1903 (M. de Mathan).

Gnadalite, Cundinamarca, Colombia, July 1903 (M. de Mathan).

San Antonio, West Colombia, November 1907 (M. G. Palmer).

1. *Thyractia cedo-nulli* (Stoll).

5 ♂♂ Tinguri; 1 ♂ Santo Domingo; 1 ♂ Oconeque; 1 ♂ Rio Demerara; 1 ♂ Bartica; 1 ♂ British Guiana (Whitford); 1 ♂ Fonte Boa; 1 ♂ San Ramon.

2. *Gonotrepes friga* (Druce).

5 ♂♂, 4 ♀♀ Fonte Boa; 3 ♂♂ La Oroya; 1 ♂ Tinguri.

3. *Robinsonia marginata* Rothsch.

2 ♀♀ British Guiana (Whitford).

4. *R. prophaea* Dogn.

11 ♂♂, 1 ♀ Fonte Boa; 21 ♂♂, 2 ♀♀ La Oroya; 4 ♂♂ La Union, Carabaya; 3 ♂♂ Tinguri; 2 ♂♂ Rio Huacamayo; 1 ♂ Santo Antonio do Javary.

5. *R. suffusa* Rothsch.

2 ♂♂ Fonte Boa.

6. *R. morula* Druce.

1 ♂ Tinguri; 3 ♂♂ La Oroya; 1 ♂ La Union, Caura; 1 ♂ Santo Domingo; 1 ♂ La Union, Carabaya; 1 ♂ Potaro; 1 ♂ Fonte Boa.

7. *R. multimaculata* Rothsch.

4 ♂♂ Santo Domingo.

8. *R. flavomarginata* Druce.

1 ♀ Amazonas (Meyer coll.); 1 ♀ Brazil.

9. *R. sanae* Druce.

1 ♀ Lower Amazons (H. F. H. Preston).

10. *R. rockstonia* Schaus.

2 ♀♀ Fonte Boa; 1 ♂ Potaro; 1 ♀ Amazonas (Meyer coll.).

11. *R. lefaivrei* Schaus.

1 ♂, 2 ♀♀ Fonte Boa.

12. *R. deiopea* Druce.

1 ♂ San José.

13. *R. punctata* Rothsch.

1 ♂ Huatuxco, Vera Cruz.

15. *R. similis* Rothsch.

1 ♂ Caparo; 1 ♂ Trinidad (F. Birch).

16. *R. dewitzi* Gndl.

6 ♂♂, 1 ♀ Merida; 2 ♂♂, 2 ♀♀ ? (ex coll. Feld.); 1 ♂ Huatuxco; 1 ♂, 1 ♀ Brazil; 1 ♂ Costa Rica; 1 ♀ Sapucay; 1 ♀ Essequibo River; 1 ♂, 2 ♀♀ Maripa, Caura River; 1 ♂ La Union to Santo Domingo; 3 ♂♂, 1 ♀ Caracas, Venezuela.

17. *Neidalia dognini* Rothsch.

2 ♂♂ Santo Domingo.

18. *N. ockendeni* spec. nov.

♂. Similar to *dognini* but paler and with a third median transverse line from costa across end of cell.

Hab. 1 ♂ Tinguri, Carabaya; and 1 ♂ La Oroya, Carabaya (G. R. Ockenden).

19. *Idalus citraria* Dogn.

9 ♂♂ Santo Domingo; 2 ♂♂ La Oroya; 2 ♂♂, 1 ♀ Merida.

20. *Idalus doncasteri* spec. nov.

♂. Nearest allied to *I. citraria* Schaus, but at first sight appears very close to *Prumala suanus* Druce.

Differs from *citraria* by having the subbasal manve patch above vein 1 much larger and paler, and **not** joined by a band to the band from below termen. This band, instead of ending at vein 1 two-thirds of the distance outwards between base and tornus, is broken up into a line of spots and ends in a large patch just above tornus, a submarginal row of spots outside this line from termen to tornus,

♀. Differs in being darker yellow; and instead of only having a small dark dot before tornus on vein 1, a dot in cell, and one between veins 4 and 5 and 5 and 6, has a dark patch before the tornus and a postmedian and subterminal row of spots from tornus to termen.

Hab. Caracas, Venezuela.

2 ♂♂, 5 ♀♀.

21. *I. rosea* Schaus.

1 ♂, 1 ♀ Colombia (W. E. Pratt); 1 ♂? (Felder coll.); 3 ♀♀ Costa Rica; 1 ♀ Tuis, Costa Rica.

22. *I. lineatus* Druce.

1 ♀ Snapure.

23. *I. hippia* Stoll.

9 ♂♂ Aroewarwa Creek; 2 ♂♂ Fonte Boa; 1 ♂ Tumatumari; 7 ♂♂ Potaro; 1 ♂ La Union, Carabaya; 2 ♂♂ Carablanco de Sarapiquí; 2 ♂♂ Amazonas (Felder coll.).

24. *I. admirabilis* Stoll.

1 ♂ San Ernesto; 1 ♂ Rio Janeiro; 11 ♂♂, 2 ♀♀ Fonte Boa; 2 ♂♂ Caparo; 1 ♀ San Fernando, Trinidad; 1 ♂ Buenavista; 1 ♂ La Union to Santo Domingo; 1 ♂, 1 ♀ Amazonas (Meyer coll.); 1 ♀ Potaro; 1 ♀ Sta. Catherina; 20 ♂♂, 2 ♀♀ St. Laurent de Maroni; 1 ♀? (Lindig) (Felder coll.).

25. *I. albaecoxae* Schaus.

1 ♀ La Oroya.

26. *I. pichesensis* Dyar.

1 ♂ Elsenau, Rio Grande do Sul, February 1905 (Dr. Martin); 1 ♂ Castro, Parana; 1 ♂?; 1 ♂ Sta. Catharina; 1 ♂ Minas Geraës; 1 ♂ Preto, Minas Geraës.

27. *I. daga daga* Dogn.

1 ♂ San Ernesto; 1 ♂ Rio Chuehurras; 1 ♀ Santo Antonio do Javary; 1 ♀ Buenavista; 1 ♂ Caracas, Venezuela.

27A. *I. daga dares* Druce.

1 ♂ 1 ♀ Lita; 1 ♀ Pambilar.

28. *I. pandama* Druce.

2 ♂♂, 2 ♀♀ Fonte Boa; 1 ♂ Poznzu.

29. *I. manora* Druce.

6 ♂♂ La Oroya; 1 ♂ Fonte Boa.

30. *I. nega* Schaus.

4 ♂♂ Fonte Boa; 2 ♂♂ Aroewarwa Creek.

31. *I. rubens* Schaus.

2 ♀♀ Aroewarwa Creek ; 2 ♂♂ Fonte Boa ; 2 ♂♂ Amazonas (Meyer coll.).

32. *I. irregularis* Rothsch.

2 ♂♂ Fonte Boa.

33. *I. xanthia* Hmpsn.

1 ♂ Jalapa ; 1 ♀ Tuis.

34. *I. flavibrunnea* Dogn.

19 ♂♂, 6 ♀♀ La Oroya ; 1 ♂ Tinguri ; 5 ♂♂ Santo Domingo.

35. *I. venata* Dogn.

1 ♂ Pozuzu ; 1 ♂ 1 ♀, Santo Domingo ; 9 ♂♂, 3 ♀♀ La Oroya ; 2 ♂♂ La Union, Carabaya ; 3 ♂♂ Tinguri ; 1 ♀ Colombia (W. E. Pratt) ; 2 ♀♀ Carreblanco.

36. *I. melanopasta* Dogn.

2 ♂♂, 1 ♀ La Union, Carabaya ; 1 ♂ Humayta ; 1 ♀ Manaus to Rio Yutahi (Maxwell Stuart) ; 2 ♂♂, 3 ♀♀ Fonte Boa.

37. *I. simplex* Rothsch.

5 ♂♂, 1 ♀ Aroewarwa Creek ; 1 ♂ Potaro.

38. *I. lutescens* Rothsch.

1 ♂ Oconeque.

39. *I. salmonaceus* Rothsch.

1 ♂, 1 ♀ Santo Domingo ; 4 ♂♂ Tinguri ; 1 ♂ Rio Huacamayo.

40. *Aphyle margaritacea* Walk.

7 ♂♂, 12 ♀♀ Aroewarwa Creek.

41. *A. affinis* Rothsch.

1 ♂ Rio Huacamayo ; 13 ♂♂, 1 ♀ Fonte Boa ; 2 ♂♂, 2 ♀♀ La Union, Carabaya ; 1 ♀ Tefé (Mathan).

42. *A. albipicta* Dogn.

1 ♂ Fonte Boa.

43. *A. cuneata* Hmpsn.

1 ♂ Fonte Boa ; 1 ♀ Potaro.

44. *A. incarnata* Hmpsn.

11 ♂♂, 1 ♀ Fonte Boa ; 3 ♂♂, 1 ♀ Aroewarwa Creek ; 4 ♂♂ La Union, Carabaya ; 1 ♀ Tefé (Mathan) ; 1 ♀ Allianca ; 1 ♀ San Antonio do Javary.

45. *Prumala aryllis* Schaus.

1 ♀ Merida.

46. *Pr. palmeri* spec. nov.

♂. Similar to *P. lophocampoides* Feld., but the whole basal two-fifths of forewing obliquely is purple grey-black with exception of costa and subcosta, and the transverse band from before termen which in *lophocampoides* joins the basal dark area above vein 1 is absent, being replaced by a large subterminal patch reaching from costa to vein 5.

Hab. San Antonio, West Colombia (G. M. Palmer).

3 ♂♂.

47. *Pr. lophocampoides* Feld.

1 ♀ (Type) Brazil (Felder coll.); 1 ♂ Rio de Janeiro; 1 ♂ Minas Geraës; 1 ♀ Castro Parana.

47a. *Pr. lophocampoides fulminans* subsp. nov.

♂. Differs from *loph. lophocampoides* in being of a much brighter yellow colour, and in having all the markings darker, broader and more distinct, and the red markings on the wings deep scarlet. Also the patagia, instead of being yellow, edged on the inside with red, have only their bases yellow, the rest greyish purple, edged outside with scarlet. Abdomen above entirely crimson.

♀. Has all markings darker, brighter, wider, and more distinct.

28 ♂♂ Santo Domingo, Carabaya; 13 ♂♂, 1 ♀, Agualani; 1 ♂ Rio Inambari; 7 ♂♂ Limbani; 1 ♂ La Oroya; 3 ♂♂, 3 ♀♀ Oconeque; 1 ♂ Merida; 3 ♂♂ Caracas, Venezuela.

47b. *Pr. lophocampoides ipsea* (Druce).

This has been placed by Sir George Hampson as a synonym of *Pr. lophocampoides*, but it is a distinct subspecies and must stand as above. It is intermediate between *loph. lophocampoides* and *loph. intensa*.

48. *Pr. maculicincta* Hmps. n.

2 ♀♀ Merida.

49. *Pr. indistincta* Roths. n.

1 ♀ Sapucay; 1 ♀ Chiriqui.

50. *Pr. jamaicensis* Schaus.

1 ♀ Pratlville, September 1893.

51. *Pr. suanus* Druce.

5 ♂♂, 1 ♀ Oconeque; 7 ♂♂, 8 ♀♀ Santo Domingo; 1 ♂ La Oroya; 1 ♀ Tinguri; 1 ♀ Merida.

52. *Pr. amecoides* (Btl.).

12 ♂♂, 1 ♀ Santo Domingo; 1 ♂ Oconeque; 3 ♂♂ Merida; 1 ♂, 1 ♀ La Oroya; 1 ♀ Huancabamba; 1 ♀ Popayan (Lehmann).

53. *Pr. saturata* (Walk.).

13 ♂♂ Potaro; 1 ♂ Allianca; 1 ♂ Berbice, British Guiana; 1 ♂ Fonte Boa;
1 ♂ Pebas, Amazonas, November 1906 (M. de Mathan); 1 ♀ British Guiana; 1 ♂
Amazonas (Felder coll., type of *Eucyrtia praxetexta* Feld.).

54. *Pr. sordida* Rothsch.

1 ♂ La Union, Carabaya; 1 ♂?; 1 ♂ Amazonas (Meyer coll.); 1 ♀ Sapncay;
2 ♀♀ Amazon River (Felder coll.).

55. *Pr. flavicollis* Rothsch.

1 ♂ Fonte Boa.

56. *Pr. incisa* Rothsch.

1 ♀ Fonte Boa.

57. *Pr. prostrata* Dogn.

1 ♂ Fonte Boa; 1 ♀ British Guiana; 1 ♀ Amazonas (Felder coll.).

58. *Pr. albicollis* (Feld.).

1 ♀ Amazon (Bates), Type (Felder coll.); 4 ♂♂, 2 ♀♀ Aroewarwa Creek;
1 ♂ La Union, Carabaya; 2 ♀♀ Fonte Boa.

59. *Pr. submarginalis* Rothsch.

1 ♂ Minas Geraës; 1 ♂ Potaro; 1 ♂ Caracas, Venezuela.

60. *Pr. intensa* Rothsch.

1 ♂, 1 ♀ Fonte Boa; 1 ♂ San Antonio do Javary.

61. *Pr. fogra* Schans.

2 ♂♂ Caracas, Venezuela.

62. *Pr. affinis* Rothsch.

1 ♂ Santo Domingo; 6 ♂♂ Fonte Boa; 1 ♂ Caradoc; 1 ♂ La Union,
Carabaya; 1 ♂ British Guiana (Whitford); 1 ♂ La Oroya; 1 ♂ Potaro.

63. *Pr. ockendeni* Rothsch.

7 ♂♂, 4 ♀♀ La Oroya; 2 ♂♂ La Union, Carabaya; 1 ♂, 1 ♀ Tingnri;
2 ♂♂, 1 ♀ Santo Domingo.

64. *Pr. similis* Rothsch.

3 ♂♂ Fonte Boa; 1 ♂ Codajas.

65. **Pr. optimus** Butl.

Sir George Hampson in vol. iii. of the Catalogue wrongly identified this species with *Noctuailus* Cram., but has now recognised this error, having received the true *ilus* Cram., which is an *Automolis*.

10 ♂♂, 1 ♀ Potaro; 3 ♂♂, 1 ♀ Fonte Boa; 2 ♂♂ Rio Demerara, British Guiana; 2 ♀♀ British Guiana.

66. **Pr. hieroglyphica** Schaus.

4 ♂♂ Fonte Boa; 2 ♂♂, 1 ♀ Potaro.

67. **Antaxia abdominalis** Herr.-Schaeff.

1 ♂ Santa Catharina; 1 ♂ Brazil; 3 ♂♂ São Paulo.

68. **A. creon** Druce.

2 ♂♂ Huatuxco; 1 ♀ Vera Cruz, Mexico.

69. **A. pyrgeon** Druce.

1 ♂ Boquete, Chiriqui, 3500 ft. (Watson).

70. **A. meridionalis** Schaus.

28 ♂♂, 8 ♀♀ Santo Domingo; 1 ♂ Agualani; 1 ♂ Chiri-Mayo; 6 ♂♂, 1 ♀ Oconeque.

71. **A. syriasa** Druce.

3 ♂♂ Rio Huacamayo.

72. **A. affinis** Rothsch.

1 ♂ La Union, Carabaya.

73. **Premolis schausi** Rothsch.

1 ♂ Fonte Boa; 1 ♀ Calama.

74. **Pr. semirufa** Walk.

2 ♂♂, 1 ♀ Fonte Boa; 6 ♂♂, 1 ♀ La Union, Carabaya; 1 ♂ Codajas; 2 ♂♂ Rio Huacamayo; 1 ♂ La Oroya; 1 ♂ Santo Domingo; 1 ♀ Tefié (Mathan).

75. **Pr. rhyssa** Druce.

15 ♂♂ La Oroya; 1 ♂ Santo Domingo; 2 ♂♂ Rio Huacamayo.

76. **Eupsodosoma bifasciata** Cram.

1 ♂ Rio Huacamayo; 2 ♂♂, 1 ♀ Fonte Boa; 1 ♂ Rio Demerara; 2 ♀♀ Christianaburg; 1 ♂ Potaro River, British Guiana.

77. *E. marpessa* Drnce.

2 ♂♂ Potaro ; 1 ♂ Tumatumari ; 26 ♂♂ Fonte Boa ; 4 ♂♂ La Union, Carabaya ; 1 ♂ Aroewarwa Creek ; 1 ♂ Teffé (Mathan) ; 1 ♂, 1 ♀ La Union to Santo Domingo.

78. *E. agramma* Hmps. n.

1 ♂ Sapucay ; 1 ♀ Cnenta, Venezuela.

79. *E. involuta floridum* Grote.

Floridum is not an aberration, but a good subspecies, and must stand as above.

1 ♂ Orizaba.

79A. *E. involuta involuta* Sepp.

10 ♂♂ Fonte Boa ; 5 ♂♂ Buenavista ; 2 ♂♂ Minas Geraës ; 1 ♂ Rio de Janeiro ; 1 ♂ Aroewarwa Creek ; 1 ♂, 1 ♀ Paraguay (Dr. Bohls) ; 1 ♂ Trinidad ; 1 ♂ Maraval, September 1891 ; 12 ♂♂, 11 ♀♀ St. Laurent de Maroni ; 1 ♂ Caracas, Venezuela.

80. *E. aberrans* Schaus.

This is a very distinct species.

9 ♂♂ Potaro ; 2 ♂♂ Caparo ; 1 ♀ Sapucay ; 1 ♀ Potaro River, British Guiana ; 1 ♂ Caracas, Venezuela.

81. *E. grandis* Rothsch.

1 ♂ Santo Domingo ; 1 ♀ Rio Huacamayo ; 1 ♀ Tuis, Costa Rica ; 1 ♀ Caradoc.

82. *E. albescens* Rothsch.

2 ♀♀ Aroewarwa Creek ; 1 ♀ British Guiana.

83. *Zatrephes nitida* Stoll.

5 ♂♂, 2 ♀♀ Fonte Boa ; 2 ♂♂ La Union, Carabaya ; 3 ♂♂ Aroewarwa Creek.

84. *Z. rosacea* Rothsch.

12 ♂♂, 1 ♀ Fonte Boa ; 2 ♀♀ Teffé (Mathan).

85. *Z. dithyris* Hmps. n.

2 ♂♂, 1 ♀ Aroewarwa Creek.

86. *Z. brunnea* Rothsch.

3 ♂♂, 1 ♀ La Union, Carabaya.

87. *Z. rufescens* Rothsch.

3 ♂♂, 8 ♀♀ Fonte Boa ; 1 ♀ Santo Antonio do Javary ; 1 ♀ Aroewarwa Creek.

88. *Z. klagesi* Rothsch.

38 ♂♂ Fonte Boa.

89. *Z. variegata* Rothsch.

12 ♂♂ Fonte Boa.

90. *Z. ossea* Schaus.

2 ♂♂ Fonte Boa.

91. *Z. foliacea* Rothsch.

14 ♂♂, 5 ♀♀ Fonte Boa; 1 ♂ Calama.

92. *Z. gigantea* Rothsch.

2 ♀♀ Fonte Boa.

93. *Z. trilineata trilineata* Hmps.

7 ♂♂ Fonte Boa; 1 ♂ Aroewarwa Creek; 1 ♀ Surinam (Felder coll.); 1 ♂ St. Laurent de Maroni.

93A. *Z. trilineata peruviana* subsp. nov.

Differs from *trilineata trilineata* by having the wings and body powdered with brownish crimson, not yellow scales, which gives the insect a more mauve tone, also the postmedian line is nearer the antemedian towards costa.

3 ♂♂ La Union, Carabaya; 1 ♂ La Union to Santo Domingo.

94. *Z. flavida* Hmps.

3 ♂♂ Potaro; 12 ♂♂ Fonte Boa; 1 ♂ Bartica, Brit. Guiana, June 1901.

95. *Z. subflavescens* Rothsch.

3 ♂♂, 1 ♀ Aroewarwa Creek; 6 ♀♀, 1 ♀ Fonte Boa; 1 ♂ Potaro; 1 ♂ Santo Antonio do Javary.

96. *Z. cruciata* Rothsch.

2 ♂♂ Fonte Boa.

97. *Z. ockendeni* Rothsch.

1 ♂ La Oroya.

98. *Z. griseorufa* Rothsch.

2 ♂♂ Fonte Boa.

99. *Z. binotata* Rothsch.

1 ♂ Fonte Boa.

100. *Z. bilineata bilineata* Rothsch.

1 ♂ La Union, Carabaya.

100A. *Z. bilineata rufobrunnea* Rothsch.

2 ♂♂ Fonte Boa.

101. **Z. modesta** Schaus.

1 ♂ Aroewarwa Creek ; 1 ♀ British Guiana.

102. **Z. sublutescens** Rothsch.

6 ♂♂, 1 ♀ La Oroya ; 1 ♂ British Guiana (Whitford) ; 1 ♂ Tinguri.

103. **Z. albescens** Rothsch.

1 ♂, 1 ♀ Fonte Boa.

104. **Z. iridescens** nom. nov.

I propose this new name for the insect I described under the name of *nitida*, as there is already in this genus a *nitida* described by Stoll.

2 ♂♂ Fonte Boa ; 2 ♂♂ Potaro.

105. **Z. irrorata** Rothsch.

1 ♂ Fonte Boa.

106. **Z. flavipuncta** Rothsch.

1 ♂ Fonte Boa.

107. **Z. miniata** Rothsch.

2 ♂♂ Fonte Boa ; 1 ♂ Santo Antonio do Javary.

108. **Azatrepes discalis** Walk.

12 ♀♀, 8 ♂♂ Fonte Boa ; 2 ♂♂ Tinguri ; 1 ♂, 1 ♀ Rio Huacamayo ; 2 ♀♀ Allianca ; 2 ♂♂ La Union, Carabaya ; 1 ♂ Codajas ; 2 ♂♂ Tefé (Mathan).

109. **Az. paradisea** Bntl.

1 ♂ Codajas ; 3 ♂♂, 1 ♀ Rio Huacamayo ; 11 ♂♂ Fonte Boa ; 2 ♂♂ La Union, Carabaya.

110. **Az. fuliginosa** Rothsch.

12 ♂♂ Fonte Boa.

111. **Neaxia ockendeni** Rothsch.

1 ♂ Rio Huacamayo ; 1 ♂ Fonte Boa.

112. **N. klagesi** Rothsch.

2 ♂♂ Aroewarwa Creek ; 1 ♂ Potaro.

113. **N. gnosis** Schaus.

1 ♂ Santo Antonio do Javary ; 1 ♂ Fonte Boa ; 1 ♂ Allianca.

114. **N. theon** Druce.

6 ♂♂, 1 ♀ Merida ; 1 ♂ La Union, Carabaya ; 1 ♀ Tinguri.

115. **N. bella** Schaus.

1 ♂ Potaro ; 1 ♂, 2 ♀♀ Aroewarwa Creek ; 5 ♂♂, 1 ♀ Fonte Boa ; 1 ♂ La Union, Carabaya.

116. **N. costaricensis** Rothsch.

1 ♂ Carablanco de Sarapiquí.

117. **N. kennedyi** Rothsch.

1 ♂ Minas Geraës.

118. **Eriostepta beata** Dogn.

7 ♂♂, 3 ♀♀ Fonte Boa ; 1 ♂ La Oroya ; 2 ♂♂ La Union, Carabaya.

119. **E. roseireta** Hmps.

2 ♂♂, 1 ♀ Fonte Boa ; 1 ♂ Aroewarwa Creek ; 1 ♂ Santo Antonio do Javary.

120. **E. bacchans** Schaus.

2 ♂♂ Aroewarwa Creek.

121. **E. fulvescens** Rothsch.

5 ♂♂ Fonte Boa ; 3 ♂♂ Aroewarwa Creek.

122. **Demolis albicostata** Hmps.

1 ♂ Sapucay ; 1 ♂ Minas Geraës.

123. **D. flavothorax** Rothsch.

1 ♂ Fonte Boa ; 1 ♂ Tefé (Mathan).

124. **Amaxia osmophora** Hmps.

1 ♂ Onaca, Sta. Marta ; 1 ♂ Merida.

125. **A. pulchra** Rothsch.

10 ♂♂ Santo Domingo ; 2 ♂♂ La Oroya.

126. **A. affinis** Rothsch.

23 ♂♂ Santo Domingo.

127. **A. apyga** Hmps.

2 ♂♂ Rio de Janeiro ; 3 ♂♂, 1 ♀ Fonte Boa ; 1 ♂ Brazil ; 1 ♂ Amazon River (Felder coll.).

128. **Amaxia** species ?

1 ♀ Bogotá (Felder coll.), too imperfect to describe.

129. *A. pyga* Schaus.

1 ♂, 2 ♀♀ Costa Rica (Underwood); 1 ♀ Amazon River (Felder coll.); 1 ♀ ?.

130. *A. consistens* Schaus.

13 ♂♂, 5 ♀♀ Fonte Boa; 1 ♀ Santo Antonio do Javary.

131. *A. dyuna* Schaus.

1 ♂ Santo Domingo.

132. *A. rufobasalis* Rothsch.

9 ♂♂ Fonte Boa.

133. *A. pardalis pardalis* Walk.

5 ♂♂ Huatuxco.

133A. *A. pardalis parva* Rothsch.

12 ♂♂ Aroewarwa Creek; 1 ♀ Manaos.

134. *A. erythrophleps* Hmps.

1 ♂ Onai; 5 ♂♂ Tumatumari; 2 ♂♂ Potaro; 8 ♂♂, 3 ♀♀ Fonte Boa; 1 ♂ Amazonas (Meyer coll.).

135. *A. hebe* Schaus.

1 ♂ Rio de Janeiro; 1 ♀ Rio de Janeiro (Felder coll.); 4 ♂♂ Minas Geraës.

136. *A. chaon* Druce.

9 ♂♂ Potaro; 10 ♂♂, 3 ♀♀ Fonte Boa; 5 ♂♂ Santo Domingo; 1 ♂, 1 ♀ Aroewarwa Creek; 2 ♀♀ Brit. Guiana (Whitford); 1 ♂ Tumatumari; 1 ♂ Onaca; 1 ♀ Costa Rica (Underwood).

137. *Evis aurococcinea* Walk.

6 ♂♂, 1 ♀ Fonte Boa; 5 ♂♂, 24 ♀♀ Aroewarwa Creek.

138. *Neonerita dorsipuncta* Hmps.

1 ♂ Calama; 2 ♀♀ Sapucay.

139. *N. haematosticta haematosticta* Dogn.

8 ♂♂, 1 ♀ Limbani; 23 ♂♂, 6 ♀♀ Agualani; 2 ♂♂ Oconeque; 1 ♂ Rio Huacamayo.

139A. *N. haematosticta parvimacula* subsp. nov.

Differs from *haem. haematosticta* in the subapical patch of the forewing being smaller and more wedge-shaped, and the ground-colour of the dark markings paler.

3 ♂♂ San Antonio, W. Colombia (G. M. Palmer).

140. *Areomolis sanguinea* Hmps. n.

5 ♂♂ Potaro; 3 ♂♂ La Oroya; 10 ♂♂ Fonte Boa; 1 ♂ Tinguri.

This insect has two distinct forms: a smaller one, with the yellow ground-colour almost obliterated by dense fiery scarlet crimson scales, and the slate-coloured transverse bands powdered with red; and a larger form where the red scaling is sparser, more scarlet, and the yellow more visible, the slate bands being broader and quite devoid of red.

141. *A. rhodographa* Hmps. n.

1 ♂ Tefé (Mathan); 49 ♂♂, 12 ♀♀ Fonte Boa; 1 ♂ Santo Antonio do Javary; 3 ♂♂ Codajas.

141A. *A. rhodographa peruviana* Roths. ch.

1 ♂ La Union, Carabaya.

142. *A. persimilis* Roths. ch.

7 ♂♂, 3 ♀♀ Fonte Boa; 6 ♂♂, 3 ♀♀ Aroewarwa Creek; 2 ♂♂ Codajas; 1 ♂ Santo Antonio do Javary; 1 ♀ Allianca; 2 ♂♂ La Union, Carabaya.

143. *A. alboapicalis* Roths. ch.

1 ♀ Aroewarwa Creek.

144. *A. griseata* Roths. ch.

1 ♂ Fonte Boa.

145. *Parevia metachryseis* Hmps. n.

9 ♂♂, 7 ♀♀ Aroewarwa Creek.

146. *Parevia mathani* Roths. ch.

1 ♂ Tefé (Mathan).

147. *Parevia maculata* Roths. ch.

1 ♀ Fonte Boa.

148. *Parevia sisenna* Druce.

7 ♀♀ Aroewarwa Creek.

149. *Parevia methaemia* Schans.

8 ♀♀ Aroewarwa Creek.

150. *Automolis albescens* Roths. ch.

1 ♀ British Guiana (Whitford); 1 ♂ Aroewarwa Creek.

151. *A. bicolor* Roths. ch.

1 ♂ Valencia, Venezuela; 1 ♀ Onaca; 1 ♀ Chanchamayo, 2100—7500 ft.

152. *A. favillacea* Rothsch.

1 ♀ Aroewarwa Creek.

153. *A. virescens* Rothsch.

4 ♂♂, 2 ♀♀ Santo Domingo.

154. *A. testacea* Rothsch.

1 ♂, 1 ♀ La Union, Carabaya; 1 ♀ Santo Domingo; 3 ♂♂, 2 ♀♀ Rio Huacamayo.

155. *A. turrupianoides* sp. nov.

♂. Legs, pectus, palpi, and frons black; vertex and thorax cream-colour; abdomen buffy orange.—Forewing semihyaline cream-colour, a black subbasal spot on costa, a median long black patch on costa reaching almost to vein 11, a black postmedian patch on costa reaching to vein 9, a postmedian black patch on inner margin reaching beyond vein 1.—Hindwing semihyaline cream-colour, inner area orange-buff.

Length of forewing: 21 mm.

Hab. Santo Antonio do Javary, Upper Amazons (S. M. Klages).

1 ♂.

156. *A. critheis* (Druce).

10 ♂♂ Fonte Boa; 1 ♂ Quevedo, Ecuador; 1 ♂ Potaro; 1 ♂ La Oroya; 1 ♂ British Guiana (Whitford); 1 ♂ Colombia (Pratt); 1 ♀ Omai.

157. *A. ochreata* Schaus.

4 ♂♂ Aroewarwa Creek.

158. *A. ochracea* Rothsch.

3 ♂♂, 1 ♀ Santo Domingo; 1 ♂, 3 ♀♀ La Oroya.

159. *A. luteorosea* Rothsch.

1 ♀ Christianaburg, Brit. Guiana.

160. *A. multicolor* Rothsch.

2 ♂♂ Potaro.

161. *A. herois* (Schaus).

1 ♂ Potaro; 2 ♂♂ Fonte Boa; 1 ♂ Jalapa; 1 ♂ Orizaba; 1 ♂ Lita, Ecuador; 1 ♀ Corondalet; 1 ♀ Merida.

162. *A. irragori* Dogn.

1 ♀ Onaca; 1 ♀ Paramba; 1 ♀ Merida.

163. *A. coacta* Dogn.

23 ♂♂ Santo Domingo; 4 ♂♂ Merida; 3 ♂♂ La Oroya; 1 ♂ Tinguri; 1 ♂ Huancabamba; 1 ♂ Popayan (Lehmann); 4 ♂♂ San Antonio (W. Colombia).

164. *A. dognini* spec. nov.

♀. Similar to *coacta*. Differs by the much more crimson thorax and abdomen, the black streaks from base of forewing being only 4 in number between costa and median vein, a black dot near base on vein 1, and a crimson streak between it and base; a perfectly straight broad median black band only broken by the white veins, and bordered with white.

Hab. La Oroya, Carabaya (Ockenden).

1 ♀.

165. *A. metacrinis* Rothsch.

1 ♂ Onaca; 1 ♀ S. Javier; 1 ♀ Rio Cayapas; 1 ♀ Paramba.

166. *A. crinis* (Druce).

1 ♂, 1 ♀ Costa Rica (Underwood); 2 ♂♂ Ciudad de Guatemala.

167. *A. delicata* (Moesch.).

1 ♂ Jamaica; 1 ♀ Newcastle, Jamaica.

168. *A. larissa* (Druce).

1 ♂ Caparo; 2 ♂♂ Aroewarwa Creek; 1 ♂ Fonte Boa.

169. *A. fasciipuncta* Rothsch.

2 ♂♂ La Union, Carabaya; 1 ♀ La Oroya; 1 ♂ Fonte Boa.

170. *A. nigropunctata* Rothsch.

1 ♂ Fonte Boa.

171. *A. aleteria* Schaus.

1 ♂ St. Ann's, Trinidad (F. E. Tryhane); 4 ♂♂, 2 ♀♀ Fonte Boa; 1 ♂ British Guiana (Whitford); 1 ♂ La Union, Carabaya; 2 ♂♂, 2 ♀♀ Aroewarwa Creek.

172. *A. reducta* Walk.

2 ♂♂, 1 ♀ ? (Felder coll.); 1 ♂ Rio de Janeiro; 1 ♂ Brazil; 2 ♂♂ Fonte Boa; 1 ♂ Rio Demerara.

173. *A. lurida* (Feld.).

1 ♂ ?, Type (Felder coll.); 12 ♂♂ Potaro; 1 ♀ Rio Demerara; 2 ♀♀ British Guiana (Whitford); 1 ♂ ?; 1 ♂ Fonte Boa.

174. *A. luridoides* spec. nov.

♂. Similar to *lurida*, only much paler. Differs by the basal blue patch on forewing being larger and much longer; the discal and terminal patches are much smaller, longer, more oblique and narrow, all three being broadly margined with white.

Hab. Preto; Minas Geraës.

1 ♂.

175. *A. pseudoflavescens* spec. nov.

♂. Differs from *flavescens* by the paler colour of its forewings, and the dark patch being sharply defined, sooty brown-grey without yellow centre.—Hindwings semihyaline greyish white, **not** sooty brown.

Hab. Preto, Minas Geraës.

1 ♂.

176. *A. flavescens* (Walk.).

This is quite distinct from *asara* Druce.

1 ♂ San Ernesto ; 5 ♂♂ Palcazn.

177. *A. aureogrisea* Rothsch.

2 ♂♂ Santo Domingo ; 1 ♂ Marcapata.

178. *A. prumaloides* Rothsch.

2 ♂♂ Fonte Boa.

179. *A. tripunctata* (Druce).

2 ♂♂ Tuis, Costa Rica ; 1 ♂ Carreblanco.

180. *A. ockendeni* Rothsch.

4 ♂♂ La Oroya ; 1 ♂ Santo Domingo.

180A. *A. ockendeni lativitta* Rothsch.

4 ♂♂ Fonte Boa.

181. *A. apicalis* Walk.

1 ♂, 1 ♀ Amazons (Bates) (Felder coll.).

182. *A. sphingidia* (Perty).

1 ♂ ♀, Type of *Euplesia vittigera* Felder ; 1 ♂ Fonte Boa ; 1 ♂ Obidos ; 1 ♂ Bartica, British Guiana ; 2 ♂♂ Amazon River (Felder coll.).

183. *A. opposita* (Walk.).

1 ♂ ♀, very imperfect (Felder coll.) ; 1 ♀ ♀, Type of *Euplesia ochrophila* Felder ; 3 ♂♂ Aroewarwa Creek ; 1 ♂ Fonte Boa ; 1 ♂ Amazonas (Meyer coll.).

184. *A. ditissimus* (Walk.).

2 ♂♂ La Oroya ; 2 ♂♂ Paramba.

185. *A. fenestrata* spec. nov.

♂. Buffy brown : Forewings wood-brown irrorated with buff, a large angulated hyaline patch from costa to vein 2, and a small one on outer margin between veins 3 and 4.—Hindwing buff.

Length of forewing : 17 mm.

Hab. Amazon River (Felder coll.).

1 ♂.

186. **A. apiciplaga** Rothsch.

1 ♂, 1 ♀ Fonte Boa.

187. **A. flavinotata** Rothsch.

1 ♀ Santo Antonio do Javary.

188. **A. flavomarginata** spec. nov.

♀. Pectus yellow; palpi, abdomen, and thorax crimson powdered with yellow. —Forewing deep brown mauve, costa and outer margin yellow, a postmedian large yellow wedge-shaped patch runs from costa to vein 5, the dark area of wing broadly edged with scarlet. —Hindwing salmon-rose.

Length of forewing: 14 mm.

Hab. Fonte Boa, Upper Amazons (S.M. Klages).

1 ♀.

189. **A. linaza** Dogn.

This is quite distinct from *lutosa* Hnebn.

190. **A. formana** Schaus.

1 ♂ Rio Demerara; 1 ♂ Fonte Boa; 1 ♂ Christianaburg; 1 ♀ Omai; 1 ♀ Holguin, Cuba.

191. **A. juvenis** (Schans).

1 ♂, 2 ♀♀ Jalapa.

192. **A. citrina** (Drnce).

3 ♂♂, 1 ♀ Merida; 1 ♂ Castro, Parana; 1 ♂ São Paulo; 1 ♂ Paraguay (Dr. Bohls); 2 ♂♂, 2 ♀♀ Caracas, Venezuela; 1 ♀ Patino-Cué.

193. **A. pseudidalus** Rothsch.

1 ♀ Fonte Boa.

194. **A. pseudopraemolis** Rothsch.

3 ♂♂ La Oroya.

195. **A. propinqua** Rothsch.

1 ♂ Rio Huacamayo.

196. **A. divisus** (Herr.-Schaeff.).

5 ♂♂ Santo Domingo; 1 ♂ Rio Huacamayo; 1 ♂ La Union, Carabaya; 1 ♂, 1 ♀ Tinguri.

197. **A. carmesina** Rothsch.

6 ♂♂, 5 ♀♀ Fonte Boa.

198. **A. crocos** (Cram.).

4 ♂♂ Fonte Boa; 1 ♂?; 2 ♀♀ Teffé (Matban); 1 ♀ Cayenne (Felder coll.).

199. *A. cruenta* Rothsch.

3 ♂♂ La Union, Carabaya ; 1 ♂ Fonte Boa.

200. *A. sanguinolenta* (Cram.).

1 ♂ ? (Felder coll.); 1 ♂ Pozuzu ; 5 ♂♂ Potaro ; 1 ♂, 1 ♀ Tctfë (Mathan) ; 1 ♂ Christianaburg ; 1 ♂ British Guiana ; 1 ♂ La Union, Carabaya ; 1 ♂ Aroewarwa Creek ; 3 ♂♂, 2 ♀♀ Fonte Boa ; 1 ♂ British Guiana (Whitford).

201. *A. grandis* (Druce).

2 ♂♂ La Oroya ; 5 ♂♂, 1 ♀ Santo Domingo.

202. *A. subflammans* Rothsch.

1 ♂ Sta. Catharina ; 1 ♂ Bogotá.

203. *A. flammans* Hmps.

6 ♂♂ La Union, Carabaya ; 1 ♂, 1 ♀ British Guiana (Whitford) ; 1 ♂, 1 ♀ Tuis.

204. *A. subtruncata* Rothsch.

1 ♂, 2 ♀♀ Sta. Catharina ; 1 ♂, 1 ♀ Brazil (Felder coll.) ; 1 ♀ Rio de Janeiro.

205. *A. pandiona* Stoll.

6 ♂♂, 5 ♀♀ Santo Domingo.

206. *A. rhodocyma* Hmps.

11 ♂♂ Santo Domingo ; 7 ♂♂ La Oroya ; 1 ♂ Tinguri ; 1 ♂ Rio Huacamayo ; 1 ♂ La Union, Carabaya.

207. *A. brunneireta* Dogn.

3 ♂♂ Rio Huacamayo ; 4 ♀♀ Santo Domingo.

208. *A. rubrireta* Dogn.

2 ♂♂ Tinguri ; 1 ♂ La Oroya ; 1 ♂ Santo Domingo.

209. *A. semirosea* Walk.

3 ♂♂ Fonte Boa ; 1 ♀ Potaro ; 1 ♂ Amazon River (Felder coll.) ; 1 ♀ ? (Meyer coll.).

210. *A. junco* (Schaus).

1 ♀ ? (Felder coll.) ; 1 ♀ Amazonas (Meyer coll.) ; 1 ♂ Nova Friburgo (Peters, Pl. 14).

211. *A. traili* (Butl.).

4 ♂♂ Aroewarwa Creek ; 15 ♂♂, 2 ♀♀ Fonte Boa ; 1 ♂ Potaro ; 1 ♂ La Union to Santo Domingo.

212. **A. hyalina hyalina** Rothsch.

3 ♂♂ La Oroya ; 2 ♂♂ Santo Domingo ; 1 ♂ Fonte Boa.

212A. **A. hyalina amaculata** subsp. nov.

Differs from *hyalina hyalina* in the hindwing being more densely scaled and entirely buffy yellow ; from tornus to vein 3 the cilia only is sooty, the large sooty patch of *hy. hyalina* being absent.

Hab. Colombia (W. E. Pratt).

1 ♂.

213. **A. griseipennis** Rothsch.

7 ♂♂, 2 ♀♀ Fonte Boa ; 1 ♂ La Union, Carabaya.

214. **A. docis** Hnebu.

4 ♂♂, 1 ♀ Itaituba to Obidos ; 2 ♂♂, 2 ♀♀ Obidos ; 1 ♂ Brit. Guiana ; 5 ♂♂, 2 ♀♀ Fonte Boa ; 1 ♂ Santo Antonio do Javary ; 2 ♀♀ Bolivia (Felder coll.) ; 1 ♀ Brit. Guiana (Whitford).

215. **A. strigosa** (Walk.).

1 ♂ Fonte Boa ; 1 ♂ La Union, Carabaya ; 1 ♀ Goyas Town, Jan. 1906 (G. A. Baer) ; 1 ♀, Type of *Eucyrtia subulifera* Feld. ; 2 ♂♂ Caracas, Venezuela.

216. **A. niveomaculata** Rothsch.

1 ♂ La Union, Carabaya.

217. **A. albiplaga** Schaus.

5 ♂♂ Fonte Boa.

218. **A. klagesi** Rothsch.

1 ♂ Fonte Boa ; 1 ♀ Codajas.

219. **A. uniformis** Rothsch.

1 ♂ Aroewarwa Creek.

220. **A. godmani** (Drnce).

This is a perfectly distinct species from *rutilus* Stoll.

221. **A. cingulata** Rothsch.

2 ♀♀ Quevedo.

222. **A. rutilus** (Stoll).

1 ♂ Rio Dagua ; 1 ♂ St. Laurent de Maroni ; 1 ♂ British Guiana (Whitford) ; 1 ♂ Santo Domingo ; 2 ♀♀ Valencia ; 1 ♀ Tefé (Mathan) ; 1 ♂, 3 ♀♀ Caracas, Venezuela.

223. **A. persimilis persimilis** Rothsch.

16 ♂♂ La Oroya ; 3 ♂♂ Tinguri ; 1 ♂ La Union, Carabaya.

223A. *A. persimilis marginata* Rothsch.

1 ♂ Tuis ; 2 ♀♀ Fonte Boa : 1 ♀ Codajas.

224. *A. separata* Walk.

13 ♂♂ Potaro ; 5 ♂♂, 3 ♀♀ Fonte Boa ; 3 ♂♂, 2 ♀♀ Aroewarwa Creek ;
1 ♀ Tumatumari.

225. *A. sypilus* (Cram.).

5 ♂♂ Caparo ; 1 ♀ Paramba.

226. *A. pseudomeoides* Rothsch.

4 ♂♂, 2 ♀♀ La Union, Carabaya ; 2 ♂♂ Fonte Boa ; 1 ♂ Maipures, Orinoco,
December 1898 (Cherrie).

227. *A. chrysomelas* Walk.

1 ♂ Minas Geraës ; 2 ♂♂ Petropolis ; 1 ♀ Sapucay ; 1 ♀ São Paulo ; 1 ♂,
Type of *Eucyrtia geometrica* Felder.

228. *A. albimaculifera* Hmps.

1 ♂, 1 ♀ Fonte Boa ; 1 ♂ Tefé (Mathan).

229. *A. contraria* Walk.

1 ♂ ? (Felder coll.) ; 1 ♂ Buenavista ; 2 ♂♂ Potaro ; 1 ♂ Humayta ; 3 ♂♂
Fonte Boa ; 1 ♂ Tefé (Mathan) ; 1 ♀ La Union, Carabaya.

230. *A. sicilia* Druce.

1 ♀ San Pedro Sula, Honduras (fide Fruhstorfer).

231. *A. zenzeroides* Butl.

1 ♂ Fonte Boa ; 1 ♂ Rio Huacamayo ; 1 ♂ La Oroya ; 2 ♂♂, 1 ♀ La Union,
Carabaya.

232. *A. latania* Druce.

5 ♂♂, 3 ♀♀ Merida ; 1 ♀ Cúcuta, Venezuela ; 1 ♀ Caracas, Venezuela.

233. *A. orbana* Schaus.

1 ♂ Caparo.

234. *A. bonora* Schaus.

1 ♂ Caparo.

235. *A. luteola* Rothsch.

2 ♂♂ Cúcuta, Venezuela ; 1 ♂ Patao Guiria, Aug. 1891 ; 1 ♀ Patino-Cué ; 1 ♀
Sapucay.

236. *A. superba* Druce.

2 ♂♂ Fonte Boa.

237. **A. salma** Druce.

This is a quite distinct species from *superba* and not the male of it, for I have examined both sexes of each.

1 ♀ Guyapa, Canra River; 1 ♀ Tumatumari.

238. **A. elissoides** Rothsch.

1 ♂ Merida; 1 ♂ Port of Spain; 1 ♀ Caparo; 1 ♀ Belmont; 1 ♀ Rio Solocame, Bolivia; 1 ♀ Belmont, Port of Spain (E. Lafond); 2 ♂♂ Caracas, Venezuela.

239. **A. elissa** Schaus.

3 ♂♂ Fonte Boa; 1 ♂ Santo Antonio do Javary; 1 ♀ Aroewarwa Creek; 1 ♀ Potaro River, Brit. Guiana.

240. **A. pseudelissa** Dogn.

1 ♂, 1 ♀ La Oroya; 25 ♂♂, 2 ♀♀ Santo Domingo; 5 ♂♂ Merida.

241. **A. buckleyi buckleyi** (Druce).

1 ♂, 1 ♀ San Ernesto.

241A. **A. buckleyi harterti** Rothsch.

5 ♂♂ Fonte Boa.

241B. **A. buckleyi whitfordi** Rothsch.

1 ♂, 1 ♀ Brit. Guiana (Whitford).

242. **A. garleppi garleppi** (Druce).

2 ♂♂ San Ernesto; 2 ♂♂ Rio Songo to Rio Suapi; 2 ♂♂ Cajon, Cuzco; 1 ♂ Yungas de Coroico.

242A. **A. garleppi pallidipennis** subsp. nov.

Differs from *gar. garleppi* in having the hindwings hyaline-buff, tinged with rose on the inner area, **not** salmon crimson.

Hab. 4 ♂♂ Fonte Boa; 2 ♂♂ La Oroya.

242B. **A. garleppi inversa** Rothsch.

4 ♂♂, 1 ♀ Santo Domingo.

243. **A. rectiradia** Hmps.

6 ♂♂ Potaro; 1 ♂, 1 ♀ Amazon River (Felder coll.)

244. **A. diluta** (Feld.).

1 ♂?, Type (Felder coll.); 3 ♂♂ British Guiana (Whitford); 2 ♂♂ Potaro; 1 ♂ Santo Domingo; 2 ♂♂ Caparo; 1 ♂ Trinidad; 1 ♂ La Oroya; 1 ♂ Valencia; 1 ♂ Venezuela; 2 ♀♀ Fonte Boa; 1 ♀ Carupano, Dec. 1891 (C. W. Ellacombe);

2 ♀ ♀ San Pedro Sula, Honduras (fide Fehnstorfer); 1 ♀ Jalapa; 1 ♀ Tuis; 1 ♂, 1 ♀ Caracas, Venezuela. The two females from Fonte Boa have entirely black hindwings.

245. *A. brunnescens brunnescens* Rothsch.

10 ♂ ♂, 2 ♀ ♀ Fonte Boa.

245A. *A. brunnescens unicolor* Rothsch.

1 ♂ Buenavista.

246. *A. griseonitens* Rothsch.

1 ♂ La Oroya; 1 ♂, 1 ♀ Santo Domingo.

247. *A. dilucida* spec. nov.

♂. Pectus brick-red; head and thorax and antennae testaceous; abdomen crimson; both wings semihyaline white, basal half of forewings with grey streaks, a black discocellular stigma with grey centre.

Length of forewing: 17 mm.

Hab. Perené River, Peru, March 1900.

1 ♂.

248. *A. ruficauda* spec. nov.

♂. Pectus and head rosy crimson; antennae, thorax, and first four segments of abdomen fuscous, brownish grey; rest of abdomen rosy crimson. Both wings testaceous, grey-brown.

Length of forewing: 17 mm.

Hab. Preto, Minas Geraes.

1 ♂.

249. *A. ardesiaca* Rothsch.

2 ♂ ♂ Tuis.

250. *A. angulosa* Walk.

1 ♂ Rio de Janeiro; 1 ♂, 1 ♀ Brazil.

251. *A. dolens* Druce.

1 ♀ Sapucay.

252. *A. semicostalis* Rothsch.

1 ♂ Fonte Boa; 1 ♀ Paramaribo, December 1892 (C. W. Ellacombe).

253. *A. apicalis* Rothsch.

I have come to the conclusion that this is **not** a subspecies of my *semicostalis*, but a distinct species.

1 ♀ ten miles above Mapiri, Bolivia, 2000 ft., 1895 (Maxwell Stuart).

254. *A. alboatra* Rothsch.

1 ♂ Fonte Boa; 1 ♂ Rio Demerara; 1 ♂ La Oroya; 1 ♂ La Union, Carabaya. This last specimen has the sooty margin of hindwing all round the wing and along the costa.

255. **A. zonana** Schaus.

1 ♂ La Union, Carabaya ; 1 ♂ Tinguri.

256. **A. moma** Schaus.

3 ♂♂ La Oroya ; 5 ♂♂ Fonte Boa ; 1 ♂ Buenavista ; 2 ♂♂ Santo Domingo ; 1 ♂ La Union, Carabaya ; 1 ♂ Santo Antonio do Javary ; 1 ♂ Tefé (Mathau) ; 1 ♀ Sta. Catharina.

257. **A. underwoodi** Rothsch.

1 ♂ Costa Rica (Underwood).

258. **A. fulgurata** Bntl.

1 ♂ Buenavista.

259. **A. melea** Drnce.

3 ♂♂, 3 ♀♀ Merida.

260. **A. collateralis** Hmpsn.

3 ♂♂, 3 ♀♀ Tuis.

261. **A. rosenbergi** Rothsch.

3 ♂♂, 3 ♀♀ Paramba ; 1 ♀ Tachira, Venezuela ; 1 ♀ Hacienda Ave Maria, West Ecuador (v. Buchwald).

262. **A. taeniata** Gnér.

2 ♂♂ Jalapa ; 2 ♂♂, 2 ♀♀ Costa Rica (Underwood) ; 5 ♂♂, 1 ♀ Orizaba ; 2 ♂♂? ; 2 ♂♂, 3 ♀♀, Huatuxco ; 1 ♂ Vera Cruz ; 1 ♀ Ciudad de Guatemala ; 1 ♀ Tuis ; 1 ♀ ? (Felder coll.).

263. **A. packardi** packardi Bntl.

1 ♂ Pebas ; 1 ♂ Itaituba to Obidos ; 1 ♂ Humayta : 1 ♂ Fonte Boa ; 1 ♂ Aroewarwa Creek ; 1 ♀ Rio Demerara.

263A. **A. packardi saturata** Rothsch.

1 ♂, 1 ♀ Santa Catharina.

264. **A. crocopera** Schaus.

1 ♀ Aroewarwa Creek.

265. **A. vittipes** Walk.

This species has two phases, one in which the ground-colour is reddish salmon, and the other in which it is golden yellow.

1 ♂ Amazon River (Felder coll.) ; 1 ♂, 2 ♀♀ Amazon River (Meyer coll.) ; 1 ♂, 1 ♀ Fonte Boa ; 2 ♂♂ Aroewarwa Creek ; 1 ♂ Sapucay ; 1 ♀ Bahia ; 1 ♀ Lita, Ecuador ; 1 ♀ Pozuzu.

266. *A. polystria* Schaus.

1 ♂ British Guiana (Whitford).

267. *A. stenotis* Dogn.

3 ♂♂ Fonte Boa.

268. *A. pulverosa* Schaus.

1 ♂ Buenavista; 4 ♂♂, 1 ♀ Fonte Boa; 2 ♂♂ La Union, Carabaya; 1 ♀ Bartica, British Guiana.

269. *A. asteroides* Schaus.

1 ♂ La Union, Carabaya.

270. *A. reticulata* Rothsch.

1 ♂ Fonte Boa.

271. *A. semiopalina* Feld.

2 ♀♀ (1 type) Cayenne (Felder coll.); 3 ♂♂ Fonte Boa; 1 ♂ Potaro.

272. *A. tybris* (Cram.).

1 ♂ Amazon River; 1 ♂ Rio Demerara; 1 ♀ Fonte Boa.

273. *A. felderi* Rothsch.

1 ♀ Colombia (Felder coll.).

274. *A. intermedia* Rothsch.

1 ♂ ? (Felder coll.); 1 ♂ La Union, Carabaya; 1 ♂ Allianca; 2 ♂♂ Amazonas (Meyer coll.); 3 ♂♂ St. Laurent de Maroni.

275. *A. vitrea vitrea* Stoll.

1 ♂ ? (Felder coll.); 1 ♂ Fonte Boa.

275A. *A. vitrea borealis* Rothsch.

3 ♂♂, 2 ♀♀ Orizaba; 1 ♂ St. George (Ellacombe); 1 ♂ Vera Cruz; 2 ♂♂, 1 ♀ Ciudad de Guatemala; 1 ♂ Rosary Mine, Spanish Honduras, 3000—4000 ft.; 1 ♀ Huatuxco; 1 ♂ San Pedro Sola, Honduras (fide Fruhstorfer); 1 ♂ Trinidad; 1 ♂ Venezuela (Felder coll.); 1 ♂ Caripe, Venezuela (Mocquerys); 3 ♂♂, 2 ♀♀ Caracas, Venezuela.

275B. *A. vitrea occidentalis* Rothsch.

6 ♂♂ La Union, Carabaya.

275C. *A. vitrea meridionalis* Rothsch.

1 ♂ Sapucay; 1 ♂ Brazil.

276. *A. lineosa* Walk.

2 ♂♂ La Oroya ; 1 ♂ Tinguri ; 1 ♀ Christianaburg ; 1 ♀ Santo Domingo ; 1 ♀ Costa Rica (Underwood).

277. *A. erythronata* Herr.-Schaeff.

1 ♂ La Oroya ; 1 ♂ Tinguri ; 18 ♂♂, 5 ♀♀ Santo Domingo ; 1 ♂, 2 ♀♀ Merida ; 2 ♂♂, 1 ♀ ? (Felder coll.) ; 1 ♂ San Antonio, W. Colombia (Palmer).

278. *A. ilus* (Cram.).

In Hampson's *Catalogue*, vol. iii. p. 67, this species is enumerated as *Automolis annulata* (Schans), and *Elysius optimus* Butler is identified with *Noctua ilus* of Cramer as *Prumala ilus*. This is an error, and *Noctua ilus* is a perfectly distinct insect not in the remotest degree to be confounded with Butler's *optimus*.

7 ♂♂, 2 ♀♀ Fonte Boa ; 7 ♂♂, 3 ♀♀ Aroewarwa Creek ; 1 ♂ Rio Demerara ; 1 ♂ Calamo ; 14 ♂♂ Potaro ; 1 ♀ British Guiana (Whitford) ; 1 ♀ Tuis.

279. *A. iloides* Schans.

1 ♂ La Union, Carabaya.

280. *Castrica phalaenoides* (Drury).

2 ♂♂ La Union, Carabaya ; 3 ♂♂ La Oroya ; 1 ♂ Santo Domingo ; 1 ♂ Asahar de Cartago ; 1 ♀ Belmont, Port of Spain, Trinidad (E. Lafond) ; 5 ♂♂, 2 ♀♀ Caracas, Venezuela.

281. *Castrica sordidior* Rothsch.

3 ♂♂ Caparo ; 1 ♂ Fonte Boa.

282. *Thyromolis pythia* (Druce).

5 ♂♂ Potaro ; 4 ♂♂ San Ernesto ; 1 ♂ Fonte Boa ; 3 ♂♂ Yungas de Coroico.

283. *Hyperandra appendiculatus* (Herr.-Schaeff.).

1 ♂ no label ; 1 ♀ Fonte Boa ; 1 ♀ Snapure.

284. *Hypaedia enervis* (Schans).

4 ♂♂ São Paulo ; 1 ♂ Preto, Minas Gerais.

285. *Cissura unilineata* (Dogn.).

8 ♂♂, 5 ♀♀ Santo Domingo.

286. *Cissura decora* Walk.

1 ♂ Santa Catharina ; 2 ♀♀ São Paulo ; 2 ♀♀ ? (Felder coll., 1 type of *Cratosia parallela* Feld.).

287. *Cissura plumbea* Hamps.

8 ♂♂, 2 ♀♀ La Oroya ; 3 ♂♂ Santo Domingo ; 4 ♂♂, 2 ♀♀ La Union, Carabaya ; 1 ♀ Yungas de Coroica.

288. *Melesse amastris* Druce.

27 ♂♂, 8 ♀♀ Santo Domingo; 1 ♂ Rio Hnacamayo; 5 ♂♂, 3 ♀♀ Ocuneque; 1 ♂, 1 ♀ La Oroya; 1 ♀ San Antonio (Palmer); 3 ♂♂, 3 ♀♀ Orizaba; 2 ♂♂ Huatuxco; 1 ♂ Vera Cruz; 1 ♀ Jalapa; 2 ♀♀ Costa Rica (Underwood).

289. *M. russatus* H. Edw.

1 ♂ Barica Island, Col., February 4, 1902 (J. H. Batty); 1 ♂ Costa Rica (Underwood); 1 ♂ San José; 1 ♀ Huatuxco; 2 ♀♀ Vera Cruz; 1 ♀ ? (Felder coll.); 1 ♀ Volcano de Chiriqui; 1 ♀ Carri Blanco.

290. *M. chozeba chozeba* Druce.

19 ♂♂, 3 ♀♀ Santo Domingo; 8 ♂♂ La Oroya; 3 ♂♂, 1 ♀ Tinguri; 1 ♂ Costa Rica; 1 ♂ Venezuela (Felder coll.); 2 ♂♂ Merida; 2 ♀♀ La Union, Carabaya; 2 ♀♀ Fonte Boa.

290A. *M. chozeba intensa* subsp. nov.

Similar to *chozeba chozeba*, but the forewings are much brighter and more intense, being of a bright crimson scarlet in the ♂ and much more crimson in the ♀; in the ♂ the hindwings are when fresh primrose-yellow, not hyaline cream-colour.

Hab. 4 ♂♂, 2 ♀♀ San Antonio, West Colombia (Palmer); 2 ♂♂ Colombia (W. E. Pratt).

291. *M. dorothea* (Stoll).

15 ♂♂ Minas Geraës; 1 ♂, 3 ♀♀ Sapucay; 2 ♂♂ Rio de Janeiro; 1 ♂ Brazil; 3 ♀♀ La Union, Carabaya; 1 ♀ Upper Rio Toro, La Merced, August—September 1901 (Simons); 1 ♂ Rio de Janeiro (Felder coll.).

292. *M. drucei* Rothsch.

1 ♂ Aroewarwa Creek; 5 ♂♂ Fonte Boa; 5 ♂♂ La Union, Carabaya; 6 ♂♂, 1 ♀ Potaro; 1 ♂ Omai.

293. *M. laodamia* Druce.

27 ♂♂, 6 ♀♀ Caparo; 1 ♂ Belmont, Port of Spain (E. Lafond); 4 ♂♂, 4 ♀♀ Caracas, Venezuela.

294. *M. peruviana* Rothsch.

15 ♂♂, 2 ♀♀ Santo Domingo; 1 ♂ Tinguri; 3 ♂♂ La Oroya.

295. *M. hebetis* Rothsch.

10 ♂♂ La Union.

296. *M. ocellata* Hamps.

4 ♂♂ La Oroya; 1 ♂, 1 ♀ Paramba; 4 ♂♂, 1 ♀ La Union, Carabaya; 2 ♂♂ Tinguri.

297. *M. sordida* Rothsch.

2 ♂♂, 1 ♀ Santo Domingo; 1 ♂ Tinguri.

298. *M. hampsoni* Rothsch.

12 ♂♂ Potaro; 5 ♂♂ La Union, Carabaya; 2 ♂♂ Fonte Boa; 3 ♂♂ Aroewarwa Creek.

299. *M. endopyra* Hamps.

10 ♂♂, 3 ♀♀ Santo Domingo; 3 ♂♂ La Oroya; 1 ♂ Rio de Janeiro; 1 ♂ La Union, Canra; 1 ♂ Tinguri.

300. *M. punctata* Rothsch.

1 ♂ Bulim, Ecuador.

301. *M. pusilla* Rothsch.

1 ♂ Potaro; 1 ♀ Aroewarwa Creek, 2 ♂♂ Fonte Boa.

302. *M. nigropunctata* Rothsch.

1 ♂ Minas Geraes; 2 ♂♂ La Union, Carabaya; 3 ♀♀ Aroewarwa Creek; 1 ♀ Buenavista.

303. *M. postica* Walk.

2 ♂♂, 2 ♀♀ La Oroya; 2 ♂♂ La Union, Carabaya; 1 ♂ Rio Huacamayo; 1 ♂ Aroewarwa Creek; 1 ♂ Snapure; 1 ♀ Fonte Boa; 1 ♂ Teffé (Mathan); 1 ♂ Santo Antonio do Javary; 1 ♀ Amazon River, 2 ♀♀ ? (Felder coll.).

304. *M. pumila* Dogn.

5 ♂♂ Fonte Boa; 2 ♂♂ Codajas; 6 ♀♀ Aroewarwa Creek.

305. *M. asana* Druce.

1 ♀ Rio Cayapas; 1 ♀ Fonte Boa; 1 ♀ ?; 1 ♀ Paramba; 1 ♂, 1 ♀ Santa Catharina; 1 ♀ Palma Sola, Venezuela; 1 ♀ Amazon River (Felder coll.).

306. *M. colombiana* Rothsch.

1 ♀ Santa Fé de Bogotá.

307. *M. babosa* Dogn.

1 ♂ La Union, Carabaya; 4 ♂♂ Rio Huacamayo; 1 ♀ Marcapata.

308. *M. chiriquensis* Schaus.

2 ♂♂ Carablanco de Sarapiquí.

309. *M. klagesi* Rothsch.

2 ♂♂ Aroewarwa Creek.

310. *M. surdus* Rothsch.

1 ♂, 1 ♀ Tumatumari; 1 ♂ Paramaribo; 5 ♀♀ Fonte Boa; 5 ♂♂, 1 ♀ St. Laurent de Maroni; 1 ♀ Aroewarwa Creek; 1 ♀ S. Javier.

311. *M. quadripunctata* Rothsch.

1 ♀ Hnancabamba.

312. *M. inconspicua* Rothsch.

1 ♂ Fonte Boa.

313. *M. albogrisea* Rothsch.

1 ♀ Sapneay.

314. *M. incertus* Walk.

16 ♂♂ St. Laurent de Maroni; 8 ♂♂ La Union, Carabaya; 5 ♂♂ Aroewarwa Creek; 4 ♂♂ Fonte Boa; 3 ♂♂ Caparo; 9 ♂♂ Potaro; 1 ♂ British Gniana (Whitford); 1 ♀ La Oroya; 1 ♂ Amazons (Bates) (Felder coll.).

315. *M. flavipuncta* Rothsch.

19 ♂♂ Caparo; 13 ♂♂, 3 ♀♀ Aroewarwa Creek; 2 ♂♂, 4 ♀♀ Fonte Boa; 6 ♂♂ Potaro; 1 ♂, 1 ♀ Tumatumari; 1 ♂ Buenavista; 1 ♂ San Ramon; 2 ♂♂ St. Laurent de Maroni; 1 ♀ Santa Catharina; 1 ♂ Omai; 1 ♂ La Union, Carabaya; 1 ♀ Palma Sola, Venezuela.

316. *M. erythrastis* Dogn.

♂. Pectus pale crimson; palpi and frons brown; vertex and thorax brown-grey edged with crimson; abdomen crimson.—Forewing except cell entirely scarlet crimson, slightly washed with buff on and near outer margin; cell area from base to just beyond discocellulars brown.—Hindwing semihyaline rose.

Length of forewing: 14 mm.

Hab. St. Laurent de Maroni.

1 ♂. I have described this insect as it is so remarkably like a suffused aberration of *incertus* Walk.

317. *Bertholdia albipuncta* Schaus.

1 ♂ Hacienda Ave Maria, West Ecuador (v. Buchwald); 2 ♀♀ Valencia, Venezuela; 3 ♂♂ Jalapa; 1 ♂, 1 ♀ Venezuela; 1 ♀ Rio de Janeiro; 1 ♂, 2 ♀♀ Caracas, Venezuela.

318. *B. myosticta* Hamps.

7 ♂♂ La Oroya; 5 ♂♂ La Union, Carabaya; 17 ♂♂, 3 ♀♀ Santo Domingo; 2 ♂♂, 2 ♀♀ Costa Rica (Underwood); 3 ♀♀ Merida; 2 ♂♂, 1 ♀ La Union, Carabaya; 1 ♂, 1 ♀ Rio Huacamayo; 1 ♀ Colombia (W. E. Pratt); 1 ♂, 1 ♀ Tuis; 1 ♀ Yungas de la Paz; 2 ♂♂, 6 ♀♀ Carri Blanco; 1 ♂, 4 ♀♀ Colombia; 1 ♀ Onaca, Sta. Marta; 2 ♂♂, 4 ♀♀ Castro Parana; 1 ♀ Lita, Ecuador, 3,000 ft. (Flemming); 1 ♂, 1 ♀ Sta. Catharina; 1 ♀ Paramba.

319. **B. ockendeni** Rothsch.

3 ♂♂, 2 ♀♀ Oconeque; 1 ♂, 1 ♀ San Antonio (Palmer).

320. **B. rubromaculata** (Rothsch.).

4 ♂♂ Oconeque.

321. **B. steinbachi** Rothsch.

1 ♂ Salta; 1 ♂ Tucuman (Steinbach).

322. **B. soror** Dyar.

1 ♂ Venezuela (Felder coll.); 4 ♂♂, 2 ♀♀ Merida; 3 ♂♂, 3 ♀♀ Ciudad de Tucuman; 1 ♂, 1 ♀ Salta; 6 ♂♂, 6 ♀♀ Tucuman (Steinbach); 6 ♂♂, 6 ♀♀ São Paulo; 2 ♂♂, 4 ♀♀ Castro Parana; 1 ♂, 1 ♀ Minas Geraës; 1 ♀ Oconeque; 1 ♂ Tucuman (Dinelli); 1 ♀ Valencia, Venezuela; 2 ♀♀?; 1 ♀ Sapucay; 1 ♀ Petropolis; 1 ♂, 1 ♀ Caracas, Venezuela.

323. **B. trigona** Grote.

1 ♂ Colorado; 2 ♂♂ Durango (Osler).

324. **B. schausiana** Dyar.

2 ♂♂, 1 ♀ Costa Rica (Underwood); 1 ♂ Huatuxco.

325. **B. specularis specularis** (Herr.-Schaeff.).

1 ♀ Paraguay (Dr. Bohls); 2 ♂♂ Ucuta, Venezuela; 1 ♀ San José; 2 ♂♂, 4 ♀♀ Orizaba; 1 ♂ Quevedo; 3 ♂♂?; 1 ♂, 2 ♀♀? (Felder coll.); 5 ♂♂, 5 ♀♀ Costa Rica (Underwood); 1 ♂ Bogava, Chiriqui (Watson); 4 ♂♂, 4 ♀♀ Merida; 2 ♀♀ Brazil; 1 ♂ Peru; 2 ♂♂ Jalapa; 1 ♀ Ciudad de Guatemala; 1 ♀ Huanca-bamba; 1 ♂ Minas Geraës; 1 ♀ Chiriqui.

325A. **B. specularis rufescens** subsp. nov.

Differs from *spec. specularis* in being more suffused with red; may be good species.

2 ♂♂ Santo Domingo, Carabaya; 3 ♀♀ Popayan.

326. **B. grisescens** Rothsch.

10 ♂♂, 4 ♀♀ La Oroya; 4 ♂♂, 1 ♀ Tinguri; 1 ♂, 1 ♀ Santo Domingo; 2 ♀♀ Salidero; 1 ♀ Upper Rio Toro; 1 ♂ Minas Geraës; 3 ♀♀ Santa Catharina; 3 ♂♂ Rio Cayapas; 2 ♀♀ Sapucay; 2 ♀♀ Colombia; 1 ♀ (W. E. Pratt); 1 ♀, La Merced; 1 ♀ Coreato, Cauca (Paine & Brinkley); 1 ♀ Rio Durango; 2 ♀♀ Caracas, Venezuela.

327. **B. flavodorsata** Hamp.

14 ♂♂, 8 ♀♀ Santo Domingo; 1 ♀ Merida; 1 ♂ La Oroya; 2 ♂♂, 1 ♀ Oconeque; 1 ♀ Paramba.

328. *Xanthophaeina laevis* (Druce).

1 ♂ Brazil (Felder coll.).

329. *Ammalo klagesi* Rothsch.

1 ♀ Fonte Boa.

330. *A. helops helops* (Cram.).

In the north and east of the range of this species specimens frequently occur with red patches in the discal area, and, on the other hand, specimens wanting these spots are not infrequent in the south and west of its range. I think that, nevertheless, in view of the fact that the larger proportion of the southern and eastern specimens have the discal patches while on the contrary the larger proportion of northern and eastern specimens lack these patches, the two forms might be retained at present as subspecies, and not treated as individual aberrations, though the matter is very uncertain.

3 ♂♂ Costa Rica (Underwood); 1 ♂ San Pedro Sula, Honduras (fide Fruhstorfer); 4 ♂♂, 1 ♀ Jamaica (Taylor); 8 ♂♂, 2 ♀♀ Santo Domingo; 1 ♂ Boulym Honse, St. Andrews, Grenada, 170 ft., April 1890; 1 ♂ St. George's November, 1891 (C. W. Ellacombe); 8 ♂♂, 7 ♀♀ Fonte Boa; 1 ♂, 1 ♀ Bahia (Felder coll.); 1 ♂ Cúcuta, Venezuela; 3 ♂♂ Orizaba; 2 ♂♂ Port of Spain; 1 ♂ La Union; 2 ♂♂ British Guiana (Whitford); 1 ♂ Tabaquite, Nariena District, Central Trinidad; 1 ♂ La Oroya; 2 ♂♂ Vera Cruz; 1 ♂ Popayan; 3 ♂♂, 2 ♀♀ Merida; 1 ♂ Quintero, May 30, 1899 (Briceño); 1 ♂ Walle, Merida, 2200 metres, June 20, 1899 (Briceño); 1 ♂ Agualani; 1 ♀ Calama, Rio Madeira (Hoffmanns); 1 ♀ Tumatumari; 3 ♀♀ Aroewarwa Creek; 2 ♀♀ Rio Demerara; 3 ♀♀ Rio Duraugo; 1 ♀ Asahar de Cartago; 1 ♀ Christianaburg; 1 ♀ St. Laurent de Maroni.

330A. *A. helops metapyrrha* (Walk.).

8 ♂♂, 4 ♀♀ Costa Rica (Underwood); 1 ♀ Paramba; 6 ♀♀ Caparo; 1 ♀ Codajas; 1 ♀ Escozu, Costa Rica, August—October 1903 (Underwood); 4 ♀♀ Fonte Boa; 1 ♀ San Ernesto; 1 ♂ Chanchamayo; 1 ♀ Aroewarwa Creek; 1 ♀ Rio Demerara; 1 ♂, 1 ♀ Santa Cruz de la Sierra; 1 ♂, 2 ♀♀ Orizaba; 1 ♀ Wakenaam, British Guiana; 1 ♀ S. Javier, Rio Cachabi (Flemming & Miquetta); 1 ♂, 1 ♀ Minas Geraës; 1 ♂ Merida; 1 ♂ Vera Cruz; 1 ♂ Huatuxco; 2 ♂♂ Tabaquite; 1 ♂, 1 ♀ Mexico (O. T. Baron); 1 ♂ Cajon, Cuzco; 2 ♂♂ Cuba; 2 ♀♀ Cuba (Felder coll.); 5 ♂♂ Santo Domingo; 1 ♂ La Oroya; 1 ♂ Valencia, Venezuela; 1 ♂ 1 ♀?, 2 ♀♀ Trinidad 1 ♀? (Felder coll.); 1 ♀ Port of Spain; 1 ♂ Caracas, Venezuela; 1 ♀ Sapncay; 1 ♀ Tobago (Percy Rendall); 1 ♂, 1 ♀ Brazil (Meyer coll.).

331. *A. constellata* (Dogn.).

1 ♂ Santo Domingo.

332. *A. insulata insulata* (Walk.).

2 ♂♂, 7 ♀♀ Belmont, Port of Spain (E. Lafond); 2 ♂♂, 2 ♀♀ Aroewarwa Creek; 1 ♂ Maraval, July 1891; 1 ♂, 1 ♀ Purnio, Colombia; 1 ♂ Palma Sola, Venezuela; 1 ♀ San Pedro Sula; 1 ♂ Maripa, Caura River; 2 ♂♂, 3 ♀♀ Ciudad Bolivar, Venezuela, September 1898—January 1899 (S. M. Klages); 2 ♀♀ Guyapa,

Canra River; 4 ♂♂, 5 ♀♀ Merida; 1 ♂ Fort George, September 1891; 3 ♀♀ Caparo; 1 ♂, 6 ♀♀ Holguin, Cuba (H. S. Parish); 1 ♀ Cuba; 2 ♂♂, 4 ♀♀ Snapure, Venezuela; 1 ♂, 1 ♀ St. Laurent de Maroni; 1 ♂ 1 ♀ Jamaica (Taylor); 1 ♂, 1 ♀ Guadalajara; 4 ♂♂, 2 ♀♀ Orizaba; 1 ♂, 1 ♀ San José; 2 ♂♂, 4 ♀♀ Costa Rica (Underwood); 8 ♂♂, 1 ♀ Newcastle, Jamaica; 2 ♂♂ British Guiana; 1 ♂, 2 ♀♀ Asabar de Cartago; 1 ♂ Vera Cruz, Mexico; 1 ♂, 1 ♀?; 1 ♂, 6 ♀♀ Jamaica; 1 ♀ Pratville; 1 ♀ San Domingo, West Indies; 1 ♀ Jalapa; 1 ♂, 2 ♀♀ Rio de Janeiro (wrong locality?); 1 ♂, 1 ♀ Brazil (Meyer coll.); 3 ♀♀ Carupano River, December 1891 (C. W. Ellacombe); 1 ♀ San Ramon, Nicaragua, June 1905 (Palmer); 1 ♂? (Felder coll.); 2 ♀♀ Popayan (Lehmann); 1 ♀ St. George, British Guiana, December 1901 (C. W. Ellacombe); 1 ♀ Valencia, Venezuela; 1 ♂, 1 ♀ Brazil; 1 ♀ São Paulo; 1 ♀ La Merced, Chanchamayo; 2 ♂♂, 2 ♀♀ Caracas, Venezuela; 1 ♀ Pedrogosa, Merida, 3000 m., October 1897 (Briceño).

333. *Haemanota cubana* spec. nov.

♂. Differs from *rubriceps* in being darker, more blackish, in the wings being longer, narrower and more pointed, and in the whole thorax, including the metathorax, being scarlet.

Hab. 1 ♂ Holguin, Cuba (Parish); 1 ♀ St. Laurent de Maroni.

334. *Glaucostola guttipalpis* (Walk.).

3 ♂♂ Potaro; 1 ♂ Caparo; 1 ♂, 1 ♀ Fonte Boa; 1 ♀ Trinidad; 3 ♀♀ Paramba; 1 ♀ St. Javier, Rio Cachabi (Flemming & Miquetta).

335. *Gl. binotata* (Schaus).

2 ♂♂, 1 ♀ Fonte Boa; 2 ♀♀ Aroewarwa Creek; 2 ♂♂ La Union, Carabaya; 2 ♀♀ Paramba, 3500 ft., June 1897 (W. Rosenberg).

336. *Gl. flavida* (Schaus).

1 ♂ Potaro; 1 ♂ Caparo.

337. *Gl. metaxantha* (Schaus).

1 ♂ Costa Rica (Underwood).

338. *Hyperthaema sanguineata* (Walk.).

1 ♂ Popayan; 11 ♂♂, 2 ♀♀ Santo Domingo; 6 ♂♂, 1 ♀ La Oroya; 2 ♂♂ Peru; 8 ♂♂ Huancabamba; 1 ♂ Rio Tanampaya, Bolivia, 1894 (Garlepp); 2 ♂♂ Cushi, Province Huancayo (W. Hoffmanns); 1 ♂ Bogava, Chiriqui (Watson).

339. *H. haemacta* Schaus.

1 ♂ Asabar de Cartago; 2 ♀♀ Cachabi, November 1896 (Rosenberg).

340. *H. coccinata* Schaus.

2 ♂♂ Santo Domingo; 1 ♂ Cajon, Cuzco; 1 ♂ Popayan; 1 ♀ La Oroya.

341. *H. hoffmannsi* Rothsch.

1 ♂ Tefé (Hoffmanns); 1 ♀ Tefé (Mathan); 1 ♀ Allianca.

342. *Ochrodota pronapides pronapides* (Druce).

4 ♂♂, 1 ♀ Codajas; 2 ♂♂, 4 ♀♀ Fonte Boa; 1 ♀ Rio Cayapas; 1 ♀ Aroewarwa Creek; 1 ♀ S. Javier; 1 ♀ Rio Demerara; 1 ♀ Carondelet, Ecuador (Flemming & Miquetta).

342a. *O. pronapides major* subsp. nov.

Similar to *pron. pronapides*, but very much larger.

Hab. Chiriqui.

1 ♀.

343. *O. similis* Rothsch.

12 ♂♂, 12 ♀♀ Fonte Boa; 7 ♂♂, 23 ♀♀ Codajos; 2 ♀♀ Santo Antonio do Javary.

344. *O. affinis* Rothsch.

3 ♂♂, 6 ♀♀ Fonte Boa; 4 ♀♀ Iquitos, 1893 (Maxwell Stuart); 1 ♂ Tefé (Mathan).

345. *O. funebris* Rothsch.

2 ♂♂ Pozuzu.

346. *O. brunnescens* Rothsch.

1 ♂ Aroewarwa Creek; 15 ♂♂, 1 ♀ Fonte Boa; 4 ♂♂, 1 ♀ Codajas.

347. *O. atra* Rothsch.

3 ♂♂, 1 ♀ La Oroya; 1 ♂ Columbia.

348. *O. tessellata* Rothsch.

4 ♂♂, 2 ♀♀ Fonte Boa; 1 ♂ Rio Huacamayo; 1 ♀ La Oroya.

349. *Tessellarctia semivaria* (Walk.).

1 ♂ Rio Grande do Sul; 1 ♂ Minas Geraës; 1 ♂ ?; 2 ♂♂ Preto, Minas Geraës.

350. *T. distincta* Rothsch.

6 ♂♂ Fonte Boa.

351. *T. ursina* (Schaus).

2 ♀♀ Brazil; 1 ♀ Rio de Janeiro.

352. *T. cinerascens* (Walk.).

1 ♂ Corcovado; 3 ♀♀ Rio de Janeiro; 1 ♂ Minas Geraës.

353. *Pachydota iodea* (Herr.-Schaeff.).

2 ♂♂ British Guiana; 1 ♀ Newcastle, Jamaica.

354. *P. ducasa* (Schaus).

1 ♂ Merida, Venezuela.

355. *P. drucei* Rothsch.

1 ♂ New Grenada (Felder coll.) ; 2 ♂♂ Jalapa.

356. *P. affinis* Rothsch.

1 ♂ Popayan ; 1 ♀ Merida.

357. *P. peruviana peruviana* Rothsch.

10 ♂♂, 2 ♀♀ Santo Domingo ; 1 ♂ La Oroya ; 1 ♂ Tinguri ; 1 ♂ Oconeque.

357A. *P. peruviana palmeri* subsp. nov.

♂. Differs from that of *per. peruviana* in being larger and having the hyaline whitish area of the hindwings occupying almost the whole of the wings nearly to the cilia.

♀. Differs in having the hindwings entirely dark brown with no hyaline area.

Hab. 1 ♂, 2 ♀♀ San Antonio, West Colombia (Palmer).

358. *P. punctata* Rothsch.

2 ♂♂, 1 ♀ Aroewarwa Creek ; 2 ♀♀ La Vuelta ; 1 ♂, 9 ♀♀ La Union, Caura ; 1 ♂ Dominica ; 3 ♂♂ Paramba ; 1 ♂ Palma Sola, Venezuela ; 1 ♀ Bulim ; 1 ♀ Rio Cayapas.

359. *P. rosenbergi* Rothsch.

1 ♂ Paramba.

360. *P. albiceps* (Walk.).

1 ♀ Aroewarwa Creek ; 1 ♀ Potaro ; 1 ♀ Caracas, Venezuela.

361. *P. nervosa* (Feld.).

1 ♀ Bogota, type (Felder coll.) ; 12 ♂♂, 5 ♀♀ Santo Domingo ; 4 ♀♀ Huancabamba ; 3 ♀♀ Merida ; 2 ♂♂, 1 ♀ Paramba ; 7 ♂♂ La Oroya ; 1 ♀ Chulinmani, Bolivia ; 1 ♂ Rio Mexiello, Department Loreto, June to December 1900 (G. A. Baer) ; 2 ♂♂, 2 ♀♀ Chanchamayo ; 1 ♀ Rio Colorado ; 1 ♀ Rio Tanampayo.

362. *P. striata* (Dogn.).

11 ♂♂, 4 ♀♀ Santo Domingo ; 1 ♂ Brazil ; 2 ♂♂ Bogota ; 1 ♂, 1 ♀ Huancabamba.

363. *Carathis palpalis* (Walk.).

1 ♂ Jamaica.

364. *Carathis klagesi* Rothsch.

7 ♂♂, 2 ♀♀ Fonte Boa.

365. *C. australis* Rothsch.

1 ♀ Sta. Catharina.

366. *C. byblis* (Schans).

2 ♂♂, 1 ♀ La Vuelta; 12 ♂♂, 7 ♀♀ La Union, Canra; 1 ♂ Maripa; 1 ♀ Corcovado.

367. *C. gortynoides* Grote.

1 ♂ Cuba (Felder coll.).

368. *C. ockendeni* Rothsch.

1 ♂ Santo Domingo.

369. *C. affinis* Rothsch.

1 ♂ Oconeque.

370. *Nezula grisea* Schaus.

2 ♂♂, 1 ♀ Aroewarwa Creek; 1 ♂ Fonte Boa; 1 ♀ Paramaribo, January 1892 (C. W. Ellacombe); 1 ♀ Salidero; 1 ♀ Rio Cayapas.

371. *Dialeucias pallidistriata* Hamps.

6 ♂♂, 5 ♀♀ Fonte Boa; 1 ♂ Santo Antonio do Javary; 1 ♂ Maripa; 1 ♂ La Union, Carabaya; 2 ♀♀ Aroewarwa Creek; 1 ♀ La Vuelta.

372. *Syntarctia oenone* (Butl.).

This is quite distinct from *testacea* Moeschler.

24 ♂♂, 15 ♀♀ Fonte Boa; 1 ♂ Itaituba to Obidos; 3 ♂♂ Manaos to Yutahi River (Maxwell Stuart); 2 ♂♂ Amazon River; 13 ♂♂, 4 ♀♀ Codajas; 1 ♂, 1 ♀ Santo Antonio do Javary; 1, Paramaribo; 1 ♀ Ciudad Bolivar, Venezuela (Klages); 1 ♀ 10 miles above Mapiri (Maxwell Stuart); 1 ♀ San Jacinthe Valley, Theophilo Ottoni, Minas Geraes, 1907—1908 (F. Birch).

373. *S. testacea* Moeschl.

1 ♂ Paramaribo; 1 ♀ Caparo.

This is quite distinct from *oenone* Butl.

374. *S. fasciatus* Rothsch.

3 ♂♂ Fonte Boa.

375. *S. russus* Rothsch.

2 ♂♂, 2 ♀♀ Fonte Boa; 1 ♂ Codajas; 1 ♂ Santo Antonio do Javary; 1 ♂ Iquitos, 1893 (Maxwell Stuart).

376. *Baritius brunnea* Hamps.

3 ♂♂ Fonte Boa; 5 ♂♂, 1 ♀ Castro Parana; 1 ♂ Sapucay; 1 ♀?; 1 ♂ Parana, Entre Rios; 1 ♀ São Paulo; 1 ♀ Pozuzu; 2 ♀♀ Iquitos, 1893 (Maxwell Stuart).

377. *B. peculiaris* Rothsch.

1 ♂ Merida; 1 ♀ La Union, Carabaya.

378. *B. haemorrhoides* Schaus.

2 ♂♂ Tumatumari; 1 ♂ Rio Dagua; 1 ♂ Tuis, Costa Rica; 3 ♀♀ La Vuelta; 1 ♂, 4 ♀♀ Marija; 3 ♀♀ La Union, Caura.

379. *B. superba* (Schaus).

1 ♀ Costa Rica (Underwood); 1 ♂, 1 ♀ Santo Domingo; 1 ♂ Orizaba; 2 ♂♂ Paramba; 5 ♂♂, 4 ♀♀ Merida; 2 ♂♂ Huancabamba; 1 ♂ Vera Cruz, Mexico; 1 ♂ Jalapa; 2 ♂♂, 1 ♀ La Oroya; 1 ♂ Palma Sola, Venezuela; 1 ♀ Asahar de Cartago; 1 ♂ Yungas de la Paz; 1 ♀ Huatuxco; 1 ♂, 1 ♀ Caracas, Venezuela.

380. *B. cepiana* Drnee.

1 ♂, 1 ♀ San Antonio (Palmer).

381. *B. drucei* spec. nov.

♀. Forewing sooty greyish black, somewhat semihyaline on disc.—Hindwing paler; abdomen sooty black, banded laterally, and on last half slightly above, with rosy crimson.

Hab. Caracas, Venezuela.

1 ♀.

382. *B. marmorea* (Schaus).

1 ♂ Santo Domingo; 2 ♂♂ La Oroya.

383. *B. schausi* Rothsch.

1 ♂ Caparo; 1 ♂, 1 ♀ Fonte Boa; 2 ♂♂ La Vuelta; 1 ♀ Marija: 1 ♀ Allianca.

384. *B. venata* Rothsch.

1 ♀ Aroewarwa Creek; 11 ♂♂ Fonte Boa.

385. *B. eleuthera* (Stoll).

2 ♂♂ La Union, Carabaya; 1 ♂ Guadalite; 1 ♂ Santo Antonio do Javary; 1 ♀ Yungas de la Paz; 1 ♀ Aroewarwa Creek; 1 ♀ Tiuguri.

386. *B. eleutheroides* Rothsch.

35 ♂♂, 3 ♀♀ Fonte Boa; 3 ♂♂, 1 ♀ Aroewarwa Creek; 1 ♀ Paramba; 1 ♂ Codajas; 1 ♂ La Union, Carabaya; 1 ♂ La Oroya; 1 ♀ Manaos to Yutahi River (Maxwell Stuart); 1 ♂ La Merced, Chanchamayo; 1 ♂ Amazon River (Meyer coll.).

387. *B. flavescens* Rothsch.

1 ♂ Fonte Boa.

388. *B. affinis* spec. nov.

♂. Similar to *B. flavescens*, but the abdomen is crimson and the forewing covered with a network of fine red-brown lines. There are on the forewing three dark brown patches on the costa, an interrupted dark brown subbasal transverse band;

a large dark brown postmedian and a smaller subapical patch, and a large patch of dark brown on inner margin.

Hab. Fonte Boa, Upper Amazons (Klages).

1 ♂

389. *B. sannionis sannionis* Rothsch.

14 ♂♂, 1 ♀ Fonte Boa.

389A. *B. sannionis grandis* Rothsch.

5 ♂♂, 1 ♀ La Oroya.

390. *Tricypha imperialis* Heyl.

1 ♂ La Oroya ; 1 ♂ Bulim ; 1 ♀ Salidero ; 1 ♀ La Union, Carabaya.

391. *T. furcata* Moeschl.

8 ♂♂, 7 ♀♀ Fonte Boa ; 4 ♀♀ Iquitos (Maxwell Stuart) ; 1 ♀ Codajas ; 1 ♀ Aroewarwa Creek ; 2 ♀♀ Allianca ; 1 ♀ Maripa.

392. *T. nigrescens* Rothsch.

Sapucay.

393. *Pelochyta bicolor* Rothsch.

1 ♀ Santo Domingo.

394. *P. nigrescens* (Dogn.).

2 ♂♂, 1 ♀ Pozuzu ; 6 ♂♂, 8 ♀♀ La Oroya ; 2 ♂♂, 3 ♀♀ Santo Domingo ; 1 ♂ Cajon, Cuzco ; 1 ♂, 1 ♀ Tinguri ; 1 ♂ Yungas de la Paz ; 1 ♂ Chiriqui, Panama ; 1 ♀ Rio Inambari.

395. *P. atra* Rothsch.

2 ♂♂, 1 ♀ La Oroya ; 2 ♂♂, 1 ♀ Santo Domingo ; 1 ♀ Cushi.

396. *P. brunnescens* Rothsch.

12 ♂♂ Santo Domingo ; 6 ♂♂ La Oroya ; 4 ♂♂ Oconeque ; 1 ♂ Pozuzu ; 1 ♂ Chiriqui ; 1 ♂ Merida ; 2 ♂♂, 1 ♀ S. Javier.

397. *P. cervina* (H. Edw.).

3 ♂♂, 2 ♀♀ Orizaba ; 1 ♀ Ciudad de Guatemala ; 1 ♀?

398. *P. cinerea* (Walk.).

11 ♂♂, 6 ♀♀ La Oroya ; 23 ♂♂, 7 ♀♀ Santo Domingo ; 4 ♂♂, 5 ♀♀ Onaca, Sta. Marta ; 2 ♂♂ Oconeque ; 10 ♂♂ Castro, Parana ; 1 ♂ Pozuzu ; 5 ♂♂, 2 ♀♀, São Paulo ; 1 ♂ Rio Durango ; 1 ♂, 1 ♀ Sapucay ; 1 ♂, 1 ♀ La Union, Carabaya ; 2 ♂♂ Boquete, Chiriqui, 3500 ft. (Watson) ; 2 ♂♂ Venezuela ; 1 ♂, 1 ♀ Brazil, 1 ♂ Bogota (Felder coll.) ; 1 ♂, 1 ♀ Nova Friburgo ; 2 ♂♂ Huatuxco ; 7 ♂♂, 4 ♀♀ Paramba ; 3 ♂♂, 2 ♀♀ Petropolis ; 5 ♂♂, 4 ♀♀ Costa Rica (Underwood) ; 1 ♂ San José ; 3 ♂♂, 8 ♀♀ Merida ; 1 ♂ Quevedo ; 1 ♂ Upper Rio Toro, La Merced,

August-September 1901 (Simons); 1 ♀ Santa Catharina; 1 ♀ Rio Colorado, Peru; 1 ♀ Chanchamayo; 1 ♀ Espirito Santo, Brazil; 3 ♀ ♀ Chiriqui; 1 ♂, 3 ♀ ♀ Tuis, Costa Rica; 1 ♀ Rio Huacamayao; 1 ♀ Cachaibi, December 1896 (Rosenberg); 1 ♂, 3 ♀ ♀ Colombia; 1 ♀ Rio Cayapas; 2 ♀ ♀ Tinguri; 1 ♀ Brazil; 1 ♂ Marecapata; 1 ♀ S. Javier; 2 ♂ ♂ Caracas, Venezuela.

399. *P. arontes* (Stoll).

24 ♂ ♂, 44 ♀ ♀ La Union, Caura; 1 ♂ La Vuelta; 2 ♂ ♂ Santo Domingo; 9 ♂ ♂, 10 ♀ ♀ Costa Rica (Underwood); 2 ♂ ♂, 1 ♀ Buenavista; 2 ♂ ♂, 3 ♀ ♀ Merida; 1 ♂, 2 ♀ ♀ Valencia, Venezuela; 1 ♂ Belmont, Port of Spain; 1 ♂, 2 ♀ ♀ Orizaba; 1 ♂, 1 ♀ Jalapa; 1 ♂, 2 ♀ ♀ Caparo; 1 Venezuela (Mocquerys); 1 ♂, 1 ♀ Guyapa, Caura; 1 ♂ San José; 2 ♂ ♂ Pozuzo; 1 ♂, 2 ♀ ♀ Sapucay; 2 ♀ ♀ Allianca; 1 ♀ Chiri-Mayo; 1 ♀ Palma Sola, Venezuela; 1 ♂, 2 ♀ ♀ Quevedo; 1 ♀ Aroewarwa Creek; 1 ♀ Chiriqui; 1 ♀ San Fernando, Trinidad; 1 ♀ Asahar de Cartago; 1 ♂ Carondelet, Ecuador; 1 ♂ S. Javier; 3 ♂ ♂, 3 ♀ ♀ Caracas, Venezuela.

400. *Elysium dryas* (Cram.).

Under this name two distinct species have been confused. A smaller, browner species with a whitish spot as stigma at end of cell, and generally in the ♂ with a narrow fuscous border to hindwing. This is the true *dryas*. A larger, blacker species with the stigma either almost absent or else large and surrounded with an irregular patch of white dots, and the hindwing with a broad fuscous border to the hindwing in the ♂ often occupying more than half the wing. This is my *omissus* (vide *infra*).

1 ♂ New Amsterdam; 1 ♀ Surinam, February 1892; 5 ♂ ♂, 6 ♀ ♀ Aroewarwa Creek; 3 ♂ ♂ ?; 1 ♂ Trinidad (F. Birch); 1 ♂ Suno, Upper Rio Napo, May 1899 (W. Goodfellow); 1 ♂ on board steamer, Manicupurei to Teffé, April 1906 (S. M. Klages); 16 ♂ ♂, 20 ♀ ♀ La Union, Caura; 2 ♂ ♂ Guyapa, Caura; 1 ♂ Fonte Boa.

401. *E. pseudodryas* Rothsch.

1 ♂ (Type) La Oroya; 1 ♂ Pozuzo; 1 ♂ Chanchamayo; 1 ♂, 1 ♀ Sta. Catharina.

402. *E. omissus* spec. nov.

♂. Pectus crimson; legs, antennae, head, and palpi dark blackish brown; collar and base of tegulae crimson; thorax, patagia, and rest of tegulae black-brown; abdomen above orange with lateral rows of black spots, last segment brown-black.—Forewing black-brown, irrorated with yellowish along costa and nervures; hindwing orange-buff, semihyaline, orange on inner area, with a broad fuscous brown outer border, reaching from base of costa over termen almost to the tornus.

♀. Similar, but more brown, and with pectus and collar orange.

Length of forewing: ♂ 33 mm., ♀ 33 mm.

Same as *dryas*.

Hab. 1 ♂ (Type) Oxapampa, N. Peru; 10 ♂ ♂ La Oroya; 5 ♂ ♂ Huancabamba; 1 ♂ Rio Huacamayao; 7 ♂ ♂ Santo Domingo; 1 ♂ Tinguri; 2 ♂ ♂, 1 ♀ Chanchamayo; 2 ♂ ♂ Pozuzo; 2 ♀ ♀ Popayan (Lehmann); 1 ♂, 1 ♀ Quevedo, W. Ecuador; 1 ♂ Calama, Rio Madeira; 1 ♂ Comanche, Cundinamarca; 1 ♂ Yungas de Coroico,

Bolivia (Garlepp); 15 ♂♂, 1 ♀ La Union, Caura; 1 ♂ Guyapa, Caura; 3 ♂♂ Aroewarwa Creek; 1 ♂ Rio Wanks; 2 ♂♂ Costa Rica (Underwood); 1 ♂ Asahar de Cartago; 9 ♂♂ Fonte Boa; 1 ♂ Santo Antonio do Javary; 1 ♂, 1 ♀ Buenavista; 1 ♀ Chimate, Bolivia; 2 ♂♂ Salampione; 1 ♂ San Ernesto.

403. *E. terranea* Rothsch.

1 ♂ La Oroya.

404. *E. pallidicosta* Walk.

13 ♂♂, 2 ♀♀ Santo Domingo; 2 ♂♂, 1 ♀ Oconeque; 1 ♂ Cuzco, Peru, April 1907 (Garlepp); 3 ♂♂ La Oroya; 2 ♀♀ Rio Tanampaya, Bolivia, 1894 (Garlepp).

405. *E. lavinea* Druce.

9 ♂♂, 2 ♀♀ Agualani; 2 ♂♂ Limbani.

406. *E. carbonarius* Dogn.

1 ♂ Santo Domingo; 1 ♂ La Oroya; 3 ♂♂, 1 ♀ Huancabamba; 2 ♀♀ Oconeque.

407. *E. fuliginosus* Rothsch.

1 ♂, 1 ♀ Huancabamba; 1 ♂ Santo Domingo; 1 ♂ Rio Tanampaya; 1 ♀ Oxapampa, N. Peru; 1 ♂ El Porvenir, E. Peru, 900 m., April 1908.

408. *E. hades* Druce.

3 ♂♂, 1 ♀ La Oroya; 4 ♂♂, 3 ♀♀ Santo Domingo.

409. *E. superba superba* Druce.

11 ♂♂, 11 ♀♀ Costa Rica (Underwood); 2 ♂♂, 3 ♀♀ Orizaba; 2 ♂♂, 2 ♀♀ Merida; 3 ♂♂ San José, Costa Rica; 2 ♂♂ Jalapa; 1 ♂ British Guiana (Whitford); 1 Huatuxeo, Vera Cruz; 1 ♂, 1 ♀ Tuis, Costa Rica; 2 ♀♀ Carreblanco, Costa Rica (Lankester); 2 ♀♀ Asahar de Cartago; 1 San José; 2 Venezuela (Felder coll.).

409A. *E. superba hampsoni* Dogn.

This is only the Ecuadorian and Peruvian subspecies of *superba*.

14 ♂♂, 1 ♀ La Oroya; 1 ♂ ? (Felder coll.); 10 ♂♂, 8 ♀♀ Santo Domingo; 5 ♂♂, 1 ♀ Tinguri; 1 ♀ Lita, Ecuador (Flemming); 1 ♀ Chiri-Mayo.

410. *E. francki* Schaus.

3 ♂♂, 2 ♀♀ Castro Parana; 3 ♂♂, 4 ♀♀ Ciudad de Tucuman (Monetti); 4 ♂♂, 2 ♀♀ Tucuman (Steinbach); 1 ♂ Nova Friburgo (Peters); 1 ♂ Salta; 2 ♂♂, 1 ♀ Minas Gerais; 1 ♂ Reyes (Stuart); 1 ♂ Rio Songo (Garlepp); 3 ♂♂ Huancabamba; 1 ♂ Goyaz town, January 1906 (G. A. Baer); 1 ♂ Yungas de la Paz (Garlepp); 1 ♂, 1 ♀ Sapucay; 1 ♀ Patino Cué; 1 ♂ Province Rio; 1 ♀ ?; 3 ♀♀ Province Tucuman, Argentina (Baer); 2 ♂♂, 2 ♀♀ Caracas, Venezuela.

411. **E. ochrota** Hamps.

3 ♂♂ Oconeque; 1 ♂ Huacabamba; 2 ♂♂ Santo Domingo; 1 ♂ San Antonio, West Colombia, December 1907 (M. G. Palmer).

412. **E. magnifica** Rothsch.

4 ♂♂ Tinguri; 2 ♂♂ La Oroya.

413. **E. cingulata** Walk.

1 ♀ Sta. Catharina.

414. **E. conjunctus** spec. nov.

Differs from *consersa* in having the basal and median patches of forewing joined into one large patch and in the hindwing of the male being hyaline buff washed with rose, and in the female buffy brown washed with rose.

Hab. 1 ♂ Sta. Catharina; 1 ♀ Maripa, Caura.

415. **E. consersa** Walk.

1 ♂ Caracas, Venezuela; 1 ♂ Rio Demerara; 1 ♂ Maripa, Caura; 1 ♂ Popayan (Lehmann); 1 ♂ Yungas de Coroico (Garlepp); 1 ♀ Reyes (Stuart); 2 ♀♀ La Vuelta; 2 ♀♀ La Union, Caura; 1 ♀ ?; 1 ♀ Chanchamayo; 1 ♀ Sapucay; 1 ♀ Paramba, Ecuador; 1 ♀ Sta. Catharina; 1 ♀ La Oroya.

416. **E. sebrus** Druce.

12 ♂♂ Chanchamayo; 2 ♂♂ Rio Colorado; 1 ♀ Buenavista; 2 ♀♀ Santo Domingo.

417. **E. hermia** Cram.

8 ♂♂ Aroewarwa Creek; 1 ♂ ?; 3 ♂♂ Colombia (Felder coll.); 10 ♂♂ Allianca; 14 ♂♂ La Union, Caura; 3 ♂♂, 1 ♀ La Vuelta; 1 ♂ La Union, Carabaya; 2 ♂♂ Maripa; 1 ♀ British Guiana; 1 ♀ Essequibo River, British Guiana, 140 miles inland; 1 ♀ Itaituba to Obidos; 1 ♂ yellow aberration, S. America (Meyer coll.).

418. **E. pyrosticta** Hamps.

2 ♂♂, 1 ♀ Province Rio; 2 ♂♂ Rio de Janeiro; 1 ♂, 2 ♀♀ São Paulo; 1 ♂ Sapucay.

419. **E. ammeloides** Rothsch.

3 ♂♂ Rio Huacamayo; 5 ♂♂ Fonte Boa.

420. **E. proba** Schaus.

5 ♂♂, 6 ♀♀ Cuernavaca; 2 ♂♂, 2 ♀♀ Guadalajara; 1 ♂ Mexico.

421. **E. atrobrunnea** Rothsch.

1 ♂, 1 ♀ Merida (Briceño).

422. *E. atrata* Feld.

9 ♂♂, 1 ♀ Agnayani; 1 ♂ Tinguri; 3 ♂♂ Huancabamba; 1 ♂ Bogotá town, December 15, 1898; 1 ♂ Rio Tanampaya (Garlepp); 1 ♂ Oconeque; 1 ♂ Cushi; 1 ♂ Limbani; 1 ♂ (Type) Bogotá (Felder coll.).

423. *E. terra* Druce.

1 ♂ Huancabamba; 1 ♀ Charaplaya, Bolivia, 1500 m., May 1901 (Simons); 1 ♂ Cushi.

424. *E. felderi* Rothsch.

4 ♂♂ Oconeque.

425. *E. terraoides* Rothsch.

1 ♂ Huancabamba; 1 ♀ Charaplaya; 1 ♀ Peru.

426. *E. chimaera* Druce.

5 ♂♂, 4 ♀♀ Sapneay; 1 ♀ Paraguay (fide Frahnstorfer); 1 ♀ Yhu, Paraguay, December 1896 (Audeer); 1 ♀ S. Cruz de La Sierra; 1 ♀ ?; 1 ♀ Patino-Cué.

427. *E. umber* (Cram.).

1 ♂ Jimenez, W. Colombia, 1600 ft., July 1907.

428. *E. immanis* (H. Edwds.).

1 ♀ Santo Domingo.

429. *E. insulsa* Dogn.

1 ♀ Chiriqui.

430. *E. affinis* (Rothsch.).

When I described this species I put it in the genus *Pelochyta*, but it rightly belongs here.

2 ♂♂ Lita, Ecuador (Flemming); 2 ♀♀ Paramba, Ecuador.

431. *E. rosenbergi* spec. nov.

♂. Allied to *tricyphoides* Rothsch. but larger and paler. Head buff; pectus and thorax clay-brown; abdomen above darker clay-brown, yellowish buff on sides of last three segments.—Forewings clay-brown with an antemedian, postmedian, and subterminal transverse band of darker brown.—Hindwing greyish clay-brown.

Hab. Paramba, West Ecuador (Rosenberg).

1 .

432. *E. pseudotricypha* Rothsch.

2 ♀♀ Fonte Boa; 2 ♂♂ La Oroya.

433. *E. tricyphoides* Rothsch.

1 ♂ Aroewarwa Creek; 1 ♂ Christianaburg, Demerara.

434. *E. disciplaga* Walk.

1 ♂, 1 ♀ Brazil; 6 ♂♂ Chanchamayo; 8 ♂♂ Paramba; 5 ♂♂, 1 ♀ Pozuzu; 2 ♂♂, 4 ♀♀ Orizaba; 1 ♂ Lita, Ecuador; 1 ♂ Cajon, Cuzco (Garlepp); 1 ♀ Yungas de la Paz; 4 ♀♀? (Felder coll.); 1 ♀ Rio de Janeiro (Felder coll.); 1 ♂, 1 ♀ Valencia, Venezuela; 1 ♀ Venezuela (Mocquerys); 1 ♂, 1 ♀ Rio Dagna; 1 ♀ Bulim, N.W. Ecuador; 2 ♀♀ Carondelet, Ecuador; 2 ♀♀ Costa Rica (Underwood); 1 ♂, 2 ♀♀ Quevedo, Ecuador; 1 ♂ Vera Cruz, Mexico; 1 ♂, 1 ♀ Caracas, Venezuela.

435. *E. jonesi* spec. nov.

♂. Frons lower half yellow; upper half of frons, legs, pectus, head, thorax, and forewings, earthy brown; abdomen yellow central and lateral rows of black dots. Hindwing semihyaline whitish brown.

Hab. São Paulo.

436. *E. phantasma phantasma* Schaus.

3 ♂♂, 1 ♀ Aroewarwa Creek.

436A. *E. phantasma intensus* subsp. nov.

♂. Similar to *ph. phantasma*, but darker, and with a black dot on centre of vertex.

Hab. Fonte Boa.

3 ♂♂.

437. *E. melanoplaga* Hamps.

2 ♂♂ Oconeque; 3 ♂♂ Santo Domingo; 1 ♂ Tinguri; 1 ♀ Chiriqui, Pauama.

438. *E. flavicosta* Druce.

5 ♂♂, 1 ♀ La Oroya; 4 ♂♂, 1 ♀ Santo Domingo; 4 ♂♂ Rio Huacamayo; 1 ♀ Tinguri.

439. *E. atriceps* Hamps.

17 ♂♂, 2 ♀♀ Santo Domingo; 2 ♂♂ Oconeque; 4 ♂♂ Rio Huacamayo; 1 ♂ Popayan, Lehmann.

440. *E. castanea* Rothsch.

4 ♂♂ Rio Huacamayo.

441. *E. deceptura* (Druce).

9 ♂♂, 2 ♀♀ Oconeque; 18 ♂♂, 3 ♀♀ Santo Domingo; 2 ♂♂ Limbani; 3 ♂♂, 2 ♀♀ Agualani; 1 ♀ La Oroya.

442. *E. bicolor* (Muass.).

1 ♂ Riobamba, Ecuador, 2800 m., March 1899 (Simmons); 1 ♀ Pisco, Peru (Hoffmanns).

443. *E. lehmanni* spec. nov.

♂. Similar to *bicolor* but with shorter and broader wings. Head, thorax, and abdomen black-brown; antennae red-brown. Forewing pale chocolate brown; hindwing white.

Hab. Popayan (Lehmann).

1 ♂.

444. *Ischnocampa nigradorsata* Schaus.

3 ♂♂, 1 ♀ Tucuman (J. Steinbach); 2 ♂♂, Tucuman, 1100 m., January and February 1905 (J. Steinbach).

445. *I. nigrivena* Schaus.

2 ♂♂ Santo Domingo; 3 ♂♂ Tinguri; 1 ♂ Oconeque; 1 ♀ Rio Songo; 1 ♀ Yungas de Coroico.

446. *I. mamona* (Dogn.).

1 ♂ La Oroya.

447. *I. hemihyala* Hamps.

3 ♂♂, 3 ♀♀ Agnalani; 5 ♂♂ Oconeque; 5 ♂♂ Limbani; 1 ♂ Huanca-bamba; 1 ♀ Rio Huacamayo.

448. *I. nubilosa* (Dogn.).

1 ♂, 3 ♀♀ Limbani; 4 ♂♂ Oconeque; 1 ♂, 2 ♀♀ Agnalani.

449. *I. sordida* Feld.

1 ♂ Cushi; 1 ♀ (type) Bogotá (Felder coll.).

450. *I. sordidior* Rothsch.

1 ♂, 1 ♀ La Oroya; 3 ♂♂ Oconeque; 2 ♂♂ La Union, Canra; 20 ♂♂, 1 ♀ Santo Domingo.

451. *I. floccosa* Rothsch.

4 ♂♂, 1 ♀ La Oroya; 2 ♂♂ Santo Domingo.

452. *I. discopunctata* Hamps.

28 ♂♂, 2 ♀♀ Santo Domingo; 4 ♂♂, 1 ♀ Oconeque.

453. *I. griseola* Rothsch.

1 ♂ Newcastle, Jamaica.

454. *I. lugubris* Schaus.

1 ♂, 1 ♀ Sta. Catharina; 2 ♂♂ Huatuxco, Vera Cruz; 1 ♂, 2 ♀♀ Merida; 2 ♂♂ La Oroya; 2 ♂♂ Costa Rica (Underwood); 2 ♂♂ Cushi; 1 ♂, 1 ♀ Chiriqui, Panama; 2 ♂♂, 4 ♀♀ Santo Domingo.

455. *I. brunneitincta* Rothsch.

1 ♂ Oconeque; 1 ♂ Cushi; 1 ♀ Santo Domingo; 1 ♂, 2 ♀ ♀ San Antonio.

456. *I. tristis* Schaus.

1 ♂ Venezuela; 2 ♂ ♂ ?; 3 ♂ ♂, 3 ♀ ♀ Orizaba; 2 ♀ ♀ Huatuxco, Vera Cruz;
1 ♂ Chiriqui.

457. *I. mundator* Druce.

3 ♂ ♂ Chiriqui, Panama.

458. *Opharus ferruginea* Walk.

1 ♂ Santa Fé de Bogotá.

459. *O. rhodosoma* Butl.

2 ♂ ♂ Venezuela; 2 ♂ ♂, 1 ♀ Merida; 1 ♂ Brazil ?!; 1 ♂ Santo Domingo.

460. *O. aurantiacus* Rothsch.

1 ♂ Chanchamayo January-July 1901 (Hoffmanns).

461. *O. basalis* Walk.

1 ♂, 1 ♀ ? (Felder coll.); 1 ♂ Colombia (Felder coll.); 1 ♀ Central America (Felder coll.); 2 ♂ ♂ Minas Geraës; 1 ♂ Province Rio; 1 ♂ ?; 2 ♂ ♂ San Ernesto; 1 ♂ Salampioni; 5 ♂ ♂ Petropolis; 1 ♂ Cuzco, Peru; 1 ♂ Buenavista; 1 ♂ Santo Domingo; 1 ♂, 1 ♀ Merida; 1 ♂, 1 ♀ Castro, Parana; 2 ♂ ♂ Rio de Janeiro; 1 ♀ La Oroya; 3 ♂ ♂, 1 ♀ Sapucay; 1 ♂ Cucuta, Venezuela; 1 ♀ Chulumani, Bolivia; 1 ♂ Yungas de Coroica; 2 ♂ ♂ Rio Songo; 2 ♂ ♂ Huanca-bamba; 1 ♂ Brazil.

462. *O. bimaculata bimaculata* (Dew.).

1 ♂, 1 ♀ Costa Rica (Underwood); 2 ♂ ♂, 1 ♀ Orizaba; 1 ♂, 1 ♀ Tuis; 1 ♀ San José; 1 ♂ Jinotega, Nicaragua, 3400 feet, October 1905 (G. M. Palmer); 1 ♀ S. Javier.

462A. *O. bimaculata major* subsp. nov.

♀. Differs from *O. b. bimaculata* in its larger size, more orange less yellow abdominal patches, in the forewings being sooty black, **not** fuscous brown, and in the hindwings being semihyaline sooty black, **not** semihyaline white.

Hab. Caracas, Venezuela.

2 ♀ ♀.

463. *O. consimilis* Hamps.

1 ♂, 1 ♀ Santo Domingo; 4 ♂ ♂, 2 ♀ ♀ Orizaba; 2 ♂ ♂, 2 ♀ ♀ San José; 1 ♂, 2 ♀ ♀ Costa Rica (Underwood); 1 ♀ Huatuxco, Vera Cruz; 2 ♀ ♀ Tuis, Costa Rica.

464. *O. procroides* Walk.

1 ♂ Quevedo; 1 ♀ Minas Geraës; 1 ♀ Rio Janeiro; 1 ♂, 4 ♀♀ Santo Domingo; 1 ♂, 3 ♀♀ Merida; 2 ♂♂, 2 ♀♀ Castro, Parana; 1 ♂ La Oroya; 4 ♀♀ ? (Felder coll.); 1 ♂ Marcapata, E. Peru, 4500 ft.; 1 ♂, 1 ♀ Pozuzu; 1 ♀ Chanchamayo; 1 ♀ Upper Rio Toro, La Merced; 1 ♀ Oconeque; 1 ♀ Nova Friborgo; 1 ♂, 1 ♀ Caracas, Venezuela.

465. *O. almopia* (Druce).

3 ♂♂, 2 ♀♀ Santo Domingo; 1 ♂ La Oroya; 2 ♂♂ Agualani; 1 ♂, 1 ♀ Oconeque; 1 ♀ Rio Huacamayo; 2 ♀♀ Limbani; 1 ♂ San Antonio, W. Colombia.

466. *O. elota* Möschl.

2 ♀♀ Newcastle, Jamaica; 4 ♀♀ Jamaica; 1 ♂ Jamaica (Taylor).

467. *O. laudia* (Druce).

7 ♂♂, 1 ♀ Merida (Briceño); 1 ♀ Merida (Hahnel).

468. *O. thalassina* (Herr.-Schaeff.).

5 ♂♂, 1 ♀ Merida; 1 ♂, 1 ♀ Colombia; 2 ♂♂, 3 ♀♀ Bogotá; 1 ♂ ?; 1 ♂ Mari-Lopez, Nicaragua, 5000 ft., October 1905 (M. G. Palmer); 2 ♀♀ ? (Felder coll.); 1 ♀ Port of Spain, May 29, 1897 (Dr. Bürger).

469. *O. intermedia* Rothsch.

1 ♀ ? (Felder coll.).

470. *O. flavimaculata* Hamps.

1 ♂ Yungas de la Paz; 1 ♂ Chanchamayo; 1 ♂ Santo Domingo; 1 ♀ Rio Sincuri; 3 ♂♂, 2 ♀♀ Tinguri.

471. *O. piperita* (Herr.-Schaeff.).

9 ♂♂, 3 ♀♀ Santo Domingo; 1 ♂, 1 ♀ Oconeque; 1 ♂ Chiriqui, Panama; 1 ♂ La Oroya; 1 ♀ Rio de Janeiro; 1 ♀ Pozuzu; 1 ♀ Tinguri.

472. *O. decrepida* (Herr.-Schaeff.).

1 ♂ Suriuam (Felder coll.); 2 ♂♂, 5 ♀♀ Santo Domingo; 4 ♂♂, 2 ♀♀ Agualani; 4 ♂♂, 2 ♀♀ Oconeque; 1 ♂ La Oroya; 2 ♀♀ Cushi; 1 ♀ Rio Tanampaya; 2 ♀♀ ? (Felder coll.).

473. *O. decrepidioides* Rothsch.

4 ♂♂ San Antonio, W. Colombia; 1 ♀ Marcapata, E. Peru, 4500 feet; 1 ♀ Santo Domingo (Type).

474. *O. hampsoni* Rothsch.

11 ♂♂, 4 ♀♀ La Oroya; 25 ♂♂, 10 ♀♀ Santo Domingo; 1 ♂ Chiri-Mayo; 1 ♂ La Union, Caura; 1 ♂ Tinguri.

475. *O. sestia* Druce.

4 ♂♂ La Oroya ; 2 ♂♂ Oconeque ; 2 ♂♂ Santo Domingo ; 1 ♂ La Union, Carabaya ; 4 ♂♂ Rio Huacamayo.

476. *O. histrionica* (Herr.-Schaeff.).

2 ♂♂, 3 ♀♀? (Felder coll.) ; 1 ♂? ; 1 ♂, 3 ♀♀ Rio de Janeiro ; 1 ♀ Brazil ; 1 ♂, 1 ♀ Minas Geraës.

477. *O. schaefferi* Schaus.

3 ♀♀ Sta. Catharina.

478. *O. chorinna* Schaus.

1 ♀ Rio Grande do Sul.

479. *O. flavipunctata* (Herr.-Schaeff.).

3 ♂♂? (Felder coll.) ; 1 ♀ Rio de Janeiro.

480. *O. depicta* (Herr.-Schaeff.).

1 ♂ Nova Friburgo ; 1 ♀ Rio de Janeiro ; 2 ♀♀? (Felder coll.).

481. *O. punctularis* (Herr.-Schaeff.).

1 ♂ Brazil ; 2 ♂♂, 2 ♀♀? (Felder coll.) (1 ♀ marked Venezuela!!).

This species has been united by Sir George Hampson with *nexa*, but they are quite distinct, as is easily seen when **both** sexes of each are compared.

482. *O. nexa* (Herr.-Schaeff.).

2 ♂♂ Brazil ; 1 ♂, 2 ♀♀? (Felder coll.), 1 ♂, 3 ♀♀ Rio de Janeiro ; 1 ♀ Nova Friburgo.

483. *O. astur astur* (Cram.).

28 ♂♂, 43 ♀♀ Patino-Cué, Paraguay (Monforts) ; 1 ♂, 1 ♀ Paraguay (Dr. Bohls) ; 1 ♂, 2 ♀♀ Sapucay ; 1 ♂ Prov. Sara, Sta. Cruz de la Sierra, January 1904 (J. Steinbach) ; 1 ♂ Salta ; 6 ♂♂, 3 ♀♀ Tucuman (J. Steinbach) ; 1 ♂, 2 ♀♀ Argentina, Prov. Tucuman (G. A. Baer) ; 1 ♂, 1 ♀ Ciudad de Tucuman (Dinelli) ; 1 ♂, 5 ♀♀ Ciudad de Tucuman (Monetti) ; 4 ♂♂, 2 ♀♀ Castro, Parana ; 1 ♀ Elsenau, Rio Grande do Sul (Dr. Martin) ; 2 ♂♂, 2 ♀♀ Nova Friburgo ; 1 ♀ Codajas ; 2 ♂♂, 5 ♀♀ Allianca ; 1 ♀ Calama ; 1 ♂? ; 2 ♂♂, 5 ♂♂? (Felder coll.) ; 2 ♀♀ Minas Geraës ; 1 ♂, 1 ♀ Brazil ; 19 ♂♂, 48 ♀♀ La Union, Canra ; 2 ♀♀ La Vuelta ; 1 ♂ Canpano, December 1891 (C. W. Ellacombe) ; 1 ♂ Aroewarwa Creek ; 1 ♀ Rio Demerara ; 1 ♂ Cucuta, Venezuela ; 3 ♂♂, 3 ♀♀ Merida ; 1 ♂, 1 ♀ Caracas, Venezuela ; 1 ♂, 3 ♀♀ Onaca, Sta. Marta ; 1 ♂, 2 ♀♀ Santa Rita, Canca River (Paine & Brinkley) ; 2 ♂♂, 3 ♀♀ Quevedo ; 2 ♂♂, 7 ♀♀ Santo Domingo ; 2 ♂♂ Bnenavista ; 1 ♀ Santa Cruz de la Sierra ; 1 ♂ Ciudad de Guatemala ; 3 ♀♀ Costa Rica (Underwood) ; 1 ♂ Chiriqui ; 3 ♂♂, 3 ♀♀ Orizaba ; 1 ♂, 1 ♀ Jalapa ; 1 ♂ Vera Cruz, Mexico.

483A. *O. astur cubensis* Rothsch.

2 ♂♂, 2 ♀♀ Cuba.

483B. *O. astur arizonensis* Rothsch.

2 ♂♂, 1 ♀ Huachuca Mts., Arizona (Oslar).

484. *O. fasciatus* Rothsch.

1 ♀ Valencia, Venezuela.

485. *O. polystrigata* Hamps.

1 ♂ Cushi ; 3 ♂♂, 5 ♀♀ Santo Domingo ; 1 ♀ Chiri-Mayo ; 1 ♀ Agualani.

486. *O. albescens* Rothsch.

7 ♂♂, 7 ♀♀ La Vuelta ; 1 ♂, 1 ♀ Aroewarwa Creek ; 1 ♂, 2 ♀♀ Maripa, Caura River ; 1 ♀ La Union, Caura.

487. *O. albotestaceus* Rothsch.

1 ♀ Maripa, Caura River.

488. *Hemihyalea ergana* (Dogn.).

9 ♂♂, 10 ♀♀ Agualani ; 1 ♀ Rio Huacamayo ; 2 ♀♀ Limbani ; 1 ♀ Tinguri.

489. *H. peruviana* Rothsch.

2 ♂♂ Agualani.

490. *H. fusca fusca* Rothsch.

2 ♂♂ Agualani.

490A. *H. fusca colombiana* subsp. nov.

Differs from *f. fusca* in having the head, thorax, and margins of wings paler.
Hab. Bogotá.

5 ♂♂, 1 ♀.

491. *H. brunnescens* Rothsch.

4 ♂♂ Agualani ; 1 ♂ Bogotá ; 1 ♂ Tinguri ; 1 ♂ Limbani.

492. *H. tristis* Rothsch.

1 ♀ Agualani ; 1 ♂ Bogotá.

493. *H. cornea* (Herr.-Schaeff.).

Here Sir George Hampson has mixed up a number of forms. *H. mansueta* H. Edwds. and *rhoda* Druce are quite distinct, as are several that I have named.

1 ♂, 2 ♀♀ (Felder coll.) ; 1 ♀?.

494. **H. fuscescens** Rothsch.

2 ♀♀ Costa Rica (Underwood) ; 1 ♂ Asahar de Cartago.

495. **H. argillacea** Rothsch.

1 ♂ Gold Hill, Oregon ; 1 ♂? 1 ♀ Ciudad de Guatemala.

496. **H. mansueta** H. Edwds.

3 ♂♂, 3 ♀♀ Orizaba ; 1 ♂ Jalapa ; 1 ♂, 1 ♀ Bogotá ; 1 ♂, 3 ♀♀ Bogotá (Child).

497. **H. battyi** Rothsch.

1 ♀ Palenka Island, Col., January 23, 1902 (J. H. Batty).

498. **H. brunnescens** Rothsch.

1 ♂ Agualani ; 1 ♂ Tiuguri.

499. **H. rhoda** (Druce).

2 ♂♂, 1 ♀ Orizaba ; 4 ♂♂ Jalapa ; 1 ♀ Vera Cruz, Mexico.

500. **H. testacea** Rothsch.

1 ♂, 5 ♀♀ Jalapa ; 1 ♂, 1 ♀ Ciudad de Guatemala ; 1 ♂ Guadalajara.

501. **H. ochracea** Rothsch.

1 ♀ Vulcan de Chiriqui ; 1 ♀ Jalapa.

502. **H. edwardsi** (Pack.).

2 ♂♂, 2 ♀♀ E. California ; 1 ♂ California ; 1 ♂, 1 ♀ California (Meyer coll.) ; 1 ♀ Gold Hill, Oregon, Sept. 12, 1900 (Biedermann) ; 1 ♂, 1 ♀? (Felder coll.) (labelled Bogota).

503. **H. labecula** Grote.

3 ♂♂, 7 ♀♀ Glenwood Springs, Colorado, June 1901 (Oslar) ; 1 ♂, 4 ♀♀ Durango, Col. (Oslar) ; 1 ♂, 1 ♀ Colorado ; 1 ♂, 1 ♀ N. America ; 5 ♀♀ Grand Junction, Col., 1901 (Oslar).

504. **H. utica** (Druce).

2 ♂♂ Orizaba.

505. **H. melas** (Dogn.).

1 ♀ Bogotá.

506. **H. xanthosticta** Hamps.

2 ♂♂, 3 ♀♀ Cayenne (Felder coll.) ; 10 ♂♂, 10 ♀♀ São Paulo ; 1 ♂ Sta. Catharina ; 3 ♀♀ Castro, Parana ; 2 ♂♂, 3 ♀♀ Nova Friburgo ; 1 ♀ Rio de Janeiro.

507. *H. diminuta* (Walk.).

1 ♂ Sta. Catharina.

508. *Pseudopharus amata* (Druce).

1 ♂ Merida ; 2 ♀ ♀ Santo Domingo.

509. *P. hades* (Dogn.).

2 ♂ ♂ Chiriqui ; 1 ♀ Volcano de Chiriqui.

510. *P. cornelia* (Druce).

1 ♂ Tinguri ; 1 ♀ La Oroya.

511. *P. domingona* (Druce).

2 ♂ ♂ Santo Domingo.

512. *Amastus adela* Schaus.

6 ♂ ♂ Castro, Parana.

513. *A. baucis* Dalm.

2 ♂ ♂ ? (Felder coll.).

514. *A. albipuncta* Hamps.

7 ♂ ♂, 10 ♀ ♀ Santo Domingo ; 1 ♀ Huancabamba ; 1 ♀ Venezuela (Felder coll.); 1 ♀ Oconeque ; 1 ♂ Upper Rio Toro (crippled and with no transverse dark markings on forewing).

515. *A. affinis* Rothsch.

5 ♂ ♂, 2 ♀ ♀ Santo Domingo ; 5 ♂ ♂ Oconeque ; 1 ♀ Tinguri ; 1 ♂, 1 ♀ Aguailani ; 1 ♀ Chiri-Mayo ; 1 ♂ Zamora, Ecuador, 3000-4000 ft. (O. T. Baron).

516. *A. flavicauda* Rothsch.

4 ♂ ♂ Chiriqui ; 2 ♂ ♂, 6 ♀ ♀ Volcano de Chiriqui ; 1 Bogava, Chiriqui.

517. *A. suffusa* (Herr.-Schaeff.).

1 ♂, 2 ♀ ♀ ? (Felder coll.) cotypes.

518. *A. hampsoni* Rothsch.

1 ♂ Paramba, Ecuador.

519. *A. ambrosia* (Drnce).

1 ♂, 1 ♀ Santa Fé de Bogotá.

520. *A. mesorrhoda* Walk.

2 ♂ ♂, 1 ♀ Bogotá.

521. *A. pseuderebella* Rothsch.

1 ♂, 7 ♀♀ Bogotá.

522. *A. erebelloides* Rothsch.

2 ♂♂ Agualani; 1 ♀ Limbani.

523. *A. erebella* (Maass.).

1 ♀ Limbani; 2 ♀♀ Agualani.

524. *A. rufator* (Walk.).

5 ♀♀ Bogotá.

525. *A. umber* Rothsch.

1 ♂, 4 ♀♀ Merida.

526. *A. pseudocollaris* Rothsch.

1 ♀ Chiriqui, Panama.

527. *A. collaris* (Herr.-Schaeff.).

11 ♂♂, 10 ♀♀ Merida; 9 ♂♂, 4 ♀♀ Santo Domingo; 3 ♂♂, 3 ♀♀ La Oroya; 4 ♀♀? (Felder coll.); 1 ♀ Bogota (Child); 2 ♂♂ San Antonio, W. Colombia; 1 ♀ Popayan (Lehmann).

528. *A. persimilis* Hamps.

1 ♂? (Felder coll.); 5 ♂♂ Oconeque; 2 ♂♂ Agualani; 1 ♂ La Oroya; 2 ♂♂ Santo Domingo; 1 ♀ Huancabamba.

529. *A. coccinator* Schaus.

10 ♂♂, 13 ♀♀ Santo Domingo; 3 ♂♂, 2 ♀♀ Oconeque; 1 ♂, 2 ♀♀ Agualani; 1 ♀ Chiri-Mayo; 2 ♀♀ Limbani; 1 ♀ R. Inambari; 1 ♀ La Oroya; 1 ♀ Tinguri; 1 ♀ Bogotá (Child) 1 ♂, 2 ♀♀ San Antonio, W. Colombia; 3 ♂♂, 3 ♀♀ Merida; 1 ♂ Venezuela (Felder coll.); 1 ♂ Rio Tanampaya.

530. *A. genoveva* (Dogn.).

4 ♂♂, 5 ♀♀ Merida.

531. *A. episcotosia* Dogn.

4 ♀♀ Chiriqui; 1 ♀ Asahar de Cartago.

532. *A. aconia* (Herr.-Schaeff.).

3 ♂♂, 2 ♀♀ Bogotá; 1 ♂ Rio Tanampaya; 1 ♂ Upper Rio Toro; 11 ♂♂, 13 ♀♀ Santo Domingo; 3 ♂♂, 5 ♀♀ Chanchamayo; 1 ♂ Caradoc, Marcapata, 4000 ft., February 1901 (Ockenden); 4 ♂♂, 8 ♀♀ La Oroya; 6 ♂♂, 4 ♀♀ Merida; 2 ♀♀ Popayan (Lehmann); 5 ♀♀ Oconeque; 1 ♀ Paramba, Ecuador; 1 ♀ Limbani; 2 ♀♀ Agualani; 1 ♀ Rio Mixiollo, Dept. Loreto, June—December 1900 (G. A. Baer); 1 ♀ Carabaya (Ockenden); 1 ♀ Tinguri; 1 ♀ La Merced, Chanchamayo; 1 ♂, 1 ♀ Caracas, Venezuela.

533. *A. rumina* Druce.

10 ♂♂, 16 ♀♀ Costa Rica (Underwood); 1 ♂, 2 ♀♀ Costa Rica, 1500 ft. (M. de Mathan); 1 ♂ Cartago; 3 ♂♂ San José; 2 ♀♀ Tuis, Costa Rica.

534. *A. coprophora* (Herr.-Schaeff.).

1 ♂ Colombia (Felder coll.); 1 ♀ Bogotá; 3 ♀♀ Merida; 2 ♂♂ San Antonio, W. Colombia.

535. *A. ochraceator* (Walk.).

3 ♂♂, 3 ♀♀ Orizaba (Schaus); 1 ♂, 1 ♀ Jalapa; 1 ♀ Rosary Mine, Spanish Honduras, 3000—4000 ft.; 1 ♀ Huatuxco, Vera Cruz, Mexico; 1 ♀ Mexico.

536. *A. elongata* (Feld.).

1 ♀ Cayenne, Type (Felder coll.); 1 ♂ São Paulo; 2 ♂♂, 3 ♀♀ Castro, Paraná.

537. *A. polystrigata* Dogn.

4 ♂♂ La Oroya; 4 ♂♂, 3 ♀♀ Santo Domingo; 2 ♂♂, 3 ♀♀ Potaro; 1 ♂ Caracas, Venezuela.

538. *A. alsa* (Druce).

2 ♀♀ Agualani.

539. *A. drncei* Rothsch.

6 ♂♂, 1 ♀ Santo Domingo; 1 ♀ Oconeque.

540. *A. dognini* Rothsch.

2 ♂♂ Santo Domingo.

541. *A. rufescens* Rothsch.

2 ♂♂ Agualani; 1 ♂ Peru.

542. *A. minerva* (Dogn.).

4 ♂♂ Oconeque.

543. *A. antonio* Dogn.

6 ♂♂, 1 ♀ Tucuman 1100 m. (J. Steinbach); 1 ♀ Ciudad de Tucuman (Monetti).

544. *A. fulvizonata* Hamps.

1 ♂ Quito, Ecuador (W. Goodfellow); 5 ♂♂, 1 ♀ Limbani; 6 ♂♂, 2 ♀♀ Agualani; 1 ♂, 3 ♀♀ Bogotá; Bogotá specimens generally have the postmedian band pink, not yellow.

545. *A. steinbachi* Rothsch.

1 ♂, 2 ♀♀ Tucuman, 1100 m. (J. Steinbach).

546. *A. erganoides* Dogn.

This is the insect I described as *A. hyalina orientalis*, having wrongly identified what I am now describing as *H. fusca columbiana* (see above) as *erganoides*.

2 ♂♂, 6 ♀♀ Merida.

547. *A. hyalina* (Dogn.).

9 ♂♂, 6 ♀♀ Agualani; 2 ♂♂, 3 ♀♀ Santo Domingo; 1 ♂, 2 ♀♀ Limbani;
5 ♀♀ Oconeque.

548. *A. childi* Rothsch.

1 ♂ Bogotá (Child); 1 ♀ Popayan (Lehmann).

549. *A. palmeri* spec. nov.

Allied to *drucei* and *dognini* Rothsch.

♂. Pectus brilliant orange; palpi dark chestnut; legs and frons dark earth-brown; antennae black; vertex, collar and anterior half of tegulae rufous; basal half of tegulae and patagia dark earth-brown, the latter with a central rufous stripe; abdomen above bright orange. Forewing bright rufous chestnut, a lighter shade below costa postmedially; hindwing semihyaline brown slightly orange at base, and on inner area.

Length of forewing: 31 mm.

Hab. San Antonio, W. Colombia, 5800 ft., December 1907 (M. G. Palmer).

1 ♂.

550. *A. rosenbergi* spec. nov.

Allied to *flavicauda* Rothsch.

♀. Pectus earth-brown; antennae fuscous; palpi fuscous; head earth-brown; collar crimson; thorax dark brown, patagia with central blackish stripe and greyish tips; abdomen above rosy crimson, last three segments yellow. Forewing cinnamon rufous, a subbasal and antemedian broad irregular blackish band, the latter with brownish centre, a discocellular triangular blackish patch, a postmedian transverse band of large conjoined brown half-moons bordered with black, a subterminal similar band, but the half-moons are more irregular; hindwing semihyaline testaceous.

Length of forewing: 38 mm.

Hab. San Antonio, W. Colombia, 5800 ft., December, 1907 (M. G. Palmer).

1 ♀.

551. *Hylarctia sericea* Schaus.

3 ♂♂, 3 ♀♀ Castro, Parana; 1 ♀ Minas Geraës; 1 ♂ Sapucay; 1 ♂ Tucuman (J. Steinbach).

552. *Psychopasma erosa* (Herr.-Schaeff.).

1 ♂ S. Javier, Rio Cachabi (Flemming & Miquetta); 1 ♂ La Vuelta; 31 ♂♂, 30 ♀♀ La Union, Caura; 4 ♂♂, 6 ♀♀ Aroewarwa Creek; 3 ♂♂, 3 ♀♀ Guyapa, Caura; 1 ♂ British Guiana; 1 ♀ British Guiana (Whitford); 1 ♀ Tumatumari; 1 ♀ Potaro; 1 ♂ Rio Demerara; 4 ♂♂ Humayta; 3 ♂♂, 1 ♀ Calama; 1 ♀ Tefé, June 1906 (W. Hoffmanns); 2 ♂♂, 1 ♀ Amazons (Bates) (Felder coll.); 2 ♂♂, 2 ♀♀ Merida; 2 ♂♂ Cananche; 1 ♂ Rio de Janeiro; 1 ♂ Rio Negro; 2 ♂♂ Paramba; 1 ♂ Lita; 1 ♂ Rio Dagna; 2 ♂♂ Bogotá; 1 ♂ Cuzco; 1 ♂ Pozuzu; 2 ♂♂ Palcazu, Dept. Junin (Sedlmayr); 2 ♂♂ La Oroya; 1 ♂, 7 ♀♀ Santo Domingo; 1 ♂ Palma Sola; 1 ♂ Rio Songo; 2 ♂♂ Brazil.

553. *Thalesa seruba* (Herr.-Schaeff.).

Sir George Hampson has identified this insect with Sepp's *Phalaena citrina*: on comparing my large series with the plate 53 in *Ins. Surinam* I feel quite unable to endorse this opinion. This plate and many others in this book are so inaccurate and misleading that almost any *Halisdota* or allied insect taken at haphazard might be identified as the insect in question. I think it therefore most advisable to ignore Sepp's names altogether. In the present case, therefore, Herrich-Schaeffer's name must be employed.

1 ♂, 1 ♀ Caparo; 3 ♂♂ Potaro; 1 ♂, 1 ♀ Rio Demerara; 1 ♂ Maripa; 1 ♂ Palma Sola; 1 ♂ Santo Domingo; 5 ♂♂, 31 ♀♀ La Union, Caura; 1 ♂ Cananehe; 1 ♂, 2 ♀♀ Aroewarwa Creek; 1 ♂ Rio de Janeiro; 3 ♂♂ ? (Felder coll.); 1 ♂ Amazons (Bates) (Felder coll.); 2 ♂♂ Patino-Cué; 1 ♀ Sapucay; 1 ♂ Jalapa; 1 ♀ Allianca; 2 ♀♀ San José, Costa Rica; 1 ♀ Fonte Boa; 1 ♀ Merida; 2 ♀♀ Paramba; 1 ♀ La Union, Carabaya; 1 ♀ La Oroya; 1 ♀ St. Laurent de Maroni; 1 ♂ Caracas, Venezuela; 4 ♂♂ Jinotega, Nicaragua, 3400 ft., October 1905 (G. M. Palmer); 2 ♂♂, 1 ♀ Amazonas (Meyer coll.).

554. *Halisdota duckinfieldia* (Schaus).

5 ♂♂, 1 ♀ São Paulo.

555. *H. nero* (Weym.).

1 ♂, 1 ♀ Province Rio (no locality, but pins show origin).

556. *H. notata* (Schaus).

1 ♀ Colombia (Felder coll.).

557. *H. hyalinipuncta* Rothsch.

4 ♂♂ Agualani.

558. *H. andensis* (Schaus).

3 ♂♂ Bogotá (1 Child).

559. *H. argentata argentata* Pack.

2 ♂♂ N. America; 1 ♂ Durango, Col. (Oslar).

559A. *H. argentata subalpina* French.

7 ♂♂, 3 ♀♀ Prescott, Arizona (Oslar).

559B. *H. argentata sobrina* Stretch.

3 ♂♂, 3 ♀♀ Monterey Co., California.

560. *H. affinis* Rothsch.

1 ♂ Huatuxco, Vera Cruz.

561. *H. ingens* H. Edw.

1 ♂, 1 ♀ Durango, Col. (Oslar).

562. *H. alternata* (Grote).

1 ♀ Orizaba.

563. *H. carrye carrye* (Harr.).

2 ♂♂, 1 ♀ Canada ; 1 ♂ ? ; 1 ♂ N. America ; 4 ♂♂, 3 ♀♀ ? (Felder coll.) ; 1 ♂, 1 ♀ New York (Meyer coll.) ; 1 ♂, 1 ♀ Washington (Sand coll.) ; 3 ♂♂, 3 ♀♀ Texas.

563A. *H. carrye propinqua* H. Edw.

6 ♂♂ Orizaba ; 2 ♂♂ Vera Cruz, Mexico ; 2 ♂♂ Jalapa ; 1 ♀ Mexico City ; 1 ♂ Cartago ; 2 ♀♀ Asahar de Cartago ; 1 ♂, 4 ♀♀ Costa Rica (Underwood) ; 2 ♀♀ San José ; 1 ♀ Ciudad de Guatemala.

563B. *H. carrye mixta* Neum.

4 ♂♂, 1 ♀ Nogales, Arizona (Osler), including type of *H. pseudocarrye* Rothsch.

Owing to the peculiar, and to me at the time unknown method of indicating *subspecies* (namely by putting the label at the head instead of the foot of the column) employed in the Natural History Museum by Sir George Hampson, I was led to redescribe this form as *H. pseudocarrye*.

564. *H. maculata maculata* (Harr.).

1 ♂, 1 ♀ New York (Meyer coll.) ; 2 ♂♂ Winnipeg, Man., May 1902 ; 2 ♂♂ Petersham, Mass., May 1902 ; 1 ♂, 1 ♀ ? (Felder coll.) ; 1 ♂ Ontario, Canada ; 1 ♀ Canada ; 1 ♂ ? ; 2 ♂♂, 3 ♀♀ Halifax, Nova Scotia.

564A. *H. maculata agassizi* Pack.

1 ♂, 1 ♀ ? ; 1 ♂ California (Felder coll.) ; 1 ♂ California ; 1 ♂, 1 ♀ San Francisco ; 1 ♂ Los Angeles ; 3 ♂♂, 5 ♀♀ San Luis Obispo, California, April 1902.

564B. *H. maculata angulifera* Walk.

2. ♂♂, 1 ♀ Kaslo, Brit. Columbia ; Keith Road, North Vancouver, May 20, 1902 (N. Charles Rothschild) ; 1 ♂, 1 ♀ Victoria, Brit. Columbia, May 1902 ; 1 ♂ Nelson, Brit. Columbia ; 1 ♂ Colorado ; 4 ♂♂, 1 ♀ Glenwood Springs, Col. (Osler) ; 2 ♂♂, 3 ♀♀ Fort Garland ; 3 ♂♂, 2 ♀♀ Almosa, Col. (Osler).

564C. *H. maculata texana* Rothsch.

4 ♂♂, 1 ♀ Texas.

565. *H. pseudomaculata* spec. nov.

♀. Pectus, head and thorax buffish yellow ; patagia with brown central line ; abdomen buff. Forewing buffy yellow with numerous ill-defined bands of cinnamon brown. Hindwing semihyaline whitish buff.

Length of forewing : 22 mm.

Hab. Brazil (Prov. Rio).

1 ♀.

566. **H. tucumana** Rothsch.

2 ♂♂, 1 ♀ Ciudad de Tucuman (Monetti); 2 ♂♂ 1 ♀ Tucuman (J. Steinbach).

567. **H. alsus** (Cram.).

1 ♂, 1 ♀ Merida; 1 ♂ Paramba; 1 ♂, 7 ♀♀ Orizaba; 3 ♀♀ Jalapa; 1 ♂, 1 ♀ Bonquete, Chiriqui, 3500 ft. (Watson); 1 ♀ Costa Rica (Underwood); 1 ♀ Ciudad de Guatemala; 1 ♀ Guadalupe, Chundinamarca (Mathan); 1 ♂, 3 ♀♀ La Oroya; 1 ♂ Oconeque; 3 ♂♂, 9 ♀♀ Santo Domingo.

568. **H. distincta distincta** Rothsch.

5 ♂♂, 2 ♀♀ Agualani; 4 ♂♂, 2 ♀♀ Oconeque; 9 ♂♂, 2 ♀♀ Santo Domingo.

568A. **H. distincta brunnescens** Rothsch.

3 ♂♂, 1 ♀ Hnancabamba, Cerro de Pasco (E. Boettger).

568B. **H. distincta obsolescens** subsp. nov.

Differs from the other two subspecies of *distincta* by the markings being more or less obsolescent in the males, and in the female the brown network tends to contract into bands.

Hab. 6 ♂♂ Bogotá [Felder coll., 1 labelled New Granada (Linden)]; 16 ♂♂, 1 ♀ Bogotá (5 ♂♂ Child); 1 ♂ Euvirons de Loja, Ecuador, 1889; 1 ♂ Quito, Ecuador (W. Goodfellow).

568C. **H. distincta meridionalis** subsp. nov.

Differs from the other forms by its small size, deeper orange ground-colour, and distinct brown marking,

Hab. Argentina, 1 ♂, 1 ♀ Salta; 2 ♂♂, 6 ♀♀ Tucuman (Steinbach, Monetti).

568D. **H. distincta pallida** subsp. nov.

Differs from all the other forms of *distincta* by its pale yellow colour and indistinct markings.

Hab. São Paulo and Castro, Parana.

1 ♂, 4 ♀♀.

569. **H. margana** Schaus.

1 ♀ Rio de Janeiro.

570. **H. rosetta** Schaus.

2 ♂♂ São Paulo.

571. **H. atomosa** (Walk.).

4 ♂♂, 4 ♀♀ Jamaica; 1 ♂, 1 ♀ Kingston, Jamaica; 1 ♀ Ellenslee, St. Andrews, Jamaica (Taylor); 1 ♀ Newcastle, Jamaica; 2 ♂♂, 2 ♀♀ erroneously labelled Rio de Janeiro.

572. *H. moeschleri* Rothsch.

11 ♂♂, 3 ♀♀ Jamaica.

573. *H. lurida* H. Edw.

2 ♂♂, 1 ♀ Orizaba ; 1 ♂ Jalapa ; 1 ♂ Vera Cruz, Mexico ; 1 ♀ ?.

574. *H. affinis* Rothsch.

1 ♂ Tinguri ; 1 ♂, 4 ♀♀ Santo Domingo.

575. *H. falacroides* Rothsch.

1 ♂ Huancabamba ; 1 ♀ Santo Domingo ; 1 ♀ S. Javier, Rio Cachabi (Flemming & Miquetta).

576. *H. falacra* Dogn.

This species was identified by Sir George Hampson as the *Phalaena bactris* of Sepp. While referring to my remarks under *Thalesa seruba*, I may say that Sepp's figure of *bactris* shows three transverse broad lines across the forewings which are entirely wanting in *falacra*, and therefore the name *bactris* can under no circumstances apply to this insect.

1 ♂ Venezuela (Felder coll.) ; 10 ♂♂, 4 ♀♀ Santo Domingo ; 5 ♂♂ Oconeque ; 10 ♂♂ La Oroya ; 1 ♂ Chulumani, Bolivia, 2000 m., December (Simons) ; 2 ♂♂ Agualani.

577. *H. hoffmannsi* Rothsch.

1 ♂ Pozuzu.

578. *H. huaco* Schaus.

1 ♂ Castro, Parana.

579. *H. subterranea* Rothsch.

6 ♂♂, 2 ♀♀ Santo Domingo ; 5 ♂♂ La Oroya ; 5 ♂♂, 1 ♀ Oconeque.

580. *H. terranea* Rothsch.

17 ♂♂ Fonte Boa ; 1 ♂ San Ernesto ; 1 ♂ Coca, Upper Rio Napo, May—June 1899 ; 1 ♂ Rio Tiptini, Rio Napo, August 1899 (W. Goodfellow).

581. *H. setosa* Rothsch.

6 ♂♂ La Union, Carabaya ; 8 ♂♂ Tinguri ; 10 ♂♂, 2 ♀♀ La Oroya.

582. *H. sobrina* Moeschl.

8 ♂♂ Pozuzu ; 3 ♂♂ Potaro ; 3 ♂♂, 4 ♀♀ Maripa, Caura ; 1 ♂ Tefé (Mnthan) ; 3 ♂♂ San Ernesto ; 4 ♂♂, 5 ♀♀ ? ; 4 ♂♂ Salampioni ; 3 ♂♂ Palcazu, Ecuador (Sedlmayr) ; 1 ♂ British Guiana ; 1 ♂ Rio Demerara ; 5 ♂♂ Aroewarwa Creek ; 2 ♂♂, 2 ♀♀ La Vuelta ; 4 ♂♂, 3 ♀♀ Fonte Boa ; 3 ♂♂ La Union, Carabaya ; 1 ♀ La Union, Caura ; 2 ♂♂ Cuzco, Peru ; 4 ♂♂ Chanchamayo ; 1 ♂ Amazons (Meyer coll.) ; 1 ♂ St. Laurent de Maroni ; 1 ♂ Quevedo.

583. *H. sobrinoides* spec. nov.

♂. Differs from *sobrina* in being larger, the wings broader; the two large patches on costa hardly indicated, and the discocellular patch replaced by two dots.

♀. Differs in having all the markings much reduced.

Hab. 1 ♂ Rio Songo; 2 ♂♂, 3 ♀♀ Maripa, Canra; 1 ♂, 1 ♀ Fonte Boa, Mouth of Kouron River, November 1905 (E. Le Moult); 3 ♂♂, 2 ♀♀ Aroewarwa Creek; 1 ♂ S. Javier; 1 ♂ Buenavista; 2 ♂♂ Rio Demerara; 3 ♂♂ Pozuzu; 1 ♂ La Merced, Chanchamayo; 1 ♂ Potaro; 6 ♂♂, 6 ♀♀ La Union, Canra; 3 ♂♂ La Vuelta; 1 ♀ Gnayaquil, W. Ecuador (v. Buchwald); 2 ♂♂ Charaplaya, Bolivia, 1300 m., July 1901 (Simons); 1 ♂ Colombia; 1 ♂ Rio Dagna, Colombia (W. Rosenberg); 6 ♂♂ Chanchamayo; 1 ♂ Suapure, Venezuela, October 2, 1899; 1 ♂ Cananche; 1 ♂ San Ernesto; 9 ♂♂, 1 ♀ La Oroya; 1 ♂ Rio Tanampaya; 1 ♂ Cuzco; 1 ♂ Pozuzu; 2 ♂♂ Rio Colorado, Peru, 2500 ft., August—September 1902 (Watkins); 3 ♂♂ Huancabamba; 1 ♂ Tinguri; 1 ♂, 1 ♀ Caracas, Venezuela; 1 ♂ Hacienda Ave Maria, W. Ecuador, April 1907 (v. Buchwald); 1 ♀ Caparo; 1 ♂ Popayan (Lehmann); 1 ♀ Environs de Loja (Dognin coll.); 1 ♂ Marcapata.

584. *H. endolobata* Hamps.

3 ♂♂ Santo Antonio do Javary; 1 ♂ Teflé (Mathan); 1 ♂ Iquitos (Stuart); 11 ♂♂, 2 ♀♀ Fonte Boa.

585. *H. atra* Druce.

1 ♂ Huatuxco, Vera Cruz; 1 ♀ Vera Cruz, Mexico; 3 ♀♀ Jalapa; 1 ♀ Costa Rica (Underwood).

586. *H. fuliginosa* Rothsch.

1 ♂ Cuernavaca; 4 ♀♀ Santo Domingo.

587. *H. bricenoi* Rothsch.

2 ♂♂, 5 ♀♀ Merida.

588. *H. underwoodi underwoodi* Rothsch.

1 ♀ Jalapa; 2 ♂♂, 2 ♀♀ Orizaba; 1 ♀ Vera Cruz, Mexico; 5 ♂♂ 11 ♀♀ Costa Rica (Underwood); 1 ♂, 1 ♀ San José; 1 ♀ Popayan (Lehmann); 1 ♀ Tuis, Costa Rica; 1 ♂ Chanchamayo; 1 ♂ Rio Huacamayo; 1 ♂ Brazil.

588A. *H. underwoodi orientalis* Rothsch.

2 ♂♂, 1 ♀ British Guiana; 1 ♂, 1 ♀ Venezuela (Felder coll.); 2 ♂♂, 1 ♀ Caparo; 2 ♂♂, 3 ♀♀ Port of Spain; 1 ♀ Tabaquite, Nariéva Dist., Central Trinidad; 2 ♂♂, 2 ♀♀ Trinidad.

589. *H. interlineata interlineata* Walk.

2 ♂♂, 1 ♀ Brazil (Felder coll.); 1 ♂, 3 ♀♀ Cayenne (Felder coll.); 2 ♀♀ Rio de Janeiro; 1 ♀ Cuernavaca; 1 ♂ Jalapa.

589A. **H. interlineata intensa** Rothsch.

1 ♂, 1 ♀ La Union, Carabaya; 4 ♂♂, 4 ♀♀ Santo Domingo; 4 ♂♂, 4 ♀♀ Costa Rica (Underwood); 2 ♂♂, 2 ♀♀ Costa Rica; 1 ♂ Tuis, Costa Rica; 2 ♂♂ Asahar de Cartago; 3 ♀♀ Merida, Venezuela; 1 ♂ Vera Cruz, Mexico; 2 ♂♂, 1 ♀ Caracas, Venezuela; 1 ♀ Cocuta, Venezuela.

590. **H. davisii** H. Edw.

6 ♂♂, 4 ♀♀ Nogales, Arizona, July 1903 (Oslar).

591. **H. osleri** Rothsch.

2 ♂♂, 2 ♀♀ Glenwood Springs, and 1 ♂, 1 ♀ Denver, Colorado (Oslar).

592. **H. schausi schausi** Rothsch.

3 ♂♂, 4 ♀♀ Costa Rica (Underwood); 1 ♀ Ciudad de Guatemala; 1 ♀ San José; 3 ♂♂, 3 ♀♀ Merida; ? 1 ♂ Vino, Peru, 5000 ft.; 1 ♂ Orizaba; 2 ♂♂, 3 ♀♀ Caracas, Venezuela.

592A. **H. schausi pallida** Rothsch.

14 ♂♂, 22 ♀♀ Cuernavaca; 1 ♀ Guadalajara.

592B. **H. schausi braziliensis** Rothsch.

1 ♀ Castro, Parana.

593. **H. cinctipes cinctipes** Grote.

1 ♂, 2 ♀♀ Orizaba; 5 ♂♂, 1 ♀ Costa Rica (Underwood); 1 ♀ Cuba; 1 ♀ Guatil.

593A. **H. cinctipes insularis** Rothsch.

6 ♂♂, 6 ♀♀ Sta. Lucia, June 1902-3 (Branch).

This and the following two subspecies, by an unfortunate error of transcription, have been published as subspecies of *schausi*.

593B. **H. cinctipes meridensis** Rothsch.

3 ♂♂ Merida; 2 ♂♂, 1 ♀ Caracas, Venezuela.

593C. **H. cinctipes tucumana** Rothsch.

3 ♂♂, 3 ♀♀ Tucuman (J. Steinbach); 1 ♂, 1 ♀ Ciudad de Tucuman (Dinelli, Monetti).

594. **H. tessellaris tessellaris** Abbott & Smith.

4 ♂♂, 6 ♀♀ Iowa; 1 ♂ Evanston, Ill., June 11, 1896 (A. J. Snyder); 3 ♂♂?; 8 ♂♂, 2 ♀♀ Amer. bor. (Felder coll.); 1 ♂ Larima Co., 5000 ft.; 1 ♂, 1 ♀ New York (Meyer coll.); 8 ♂♂, 3 ♀♀ Canada; 1 ♂ Long Island; 1 ♂ Washington; 5 ♂♂, 8 ♀♀ Texas.

594A. *H. tessellaris meridionalis* Rothsch.

1 ♂, 4 ♀ ♀ Orizaba.

595. *H. steinbachi* Rothsch.

3 ♂♂, 1 ♀ Tucuman (Steinbach); 1 ♂, 1 ♀ Salta, Argentina (Steinbach);
1 ♂, 4 ♀ ♀ Ciudad de Tucuman (Dinelli, Monetti).

596. *H. masoni* (Schaus).

1 ♂ Orizaba; 1 ♀ Huatuxeo, Vera Cruz.

597. *H. brunneitincta* Hamps.

1 ♂ New Granada (Felder coll.).

598. *H. cyclozonata* Hamps.

9 ♂♂, 5 ♀ ♀ La Oroya; 16 ♂♂, 18 ♀ ♀ Fonte Boa; 3 ♂♂, 4 ♀ ♀ Aroewarwa
Creek; 1 ♂ La Union, Carabaya; 1 ♂ Potaro; 1 ♂ Teffé (Mathan); 1 ♀ Tinguri;
1 ♀ San Ernesto.

599. *H. androlepia* Dogn.

1 ♂ Oconeque; 3 ♂♂, 4 ♀ ♀ Santo Domingo; 1 ♂ La Oroya.

600. *H. lineata* Schaus.

11 ♂♂, 2 ♀ ♀ São Paulo; 5 ♂♂ Sapucay.

601. *H. aurata* D. Jones.

1 ♀ Sapucay.

602. *H. oruboides* Rothsch.

6 ♂♂ Santo Domingo; 5 ♂♂, 1 ♀ Tinguri; 2 ♂♂ Potaro; 8 ♂♂ La Oroya;
1 ♂ Rio Huacamayo.

603. *H. similis* Rothsch.

7 ♂♂, 1 ♀ Fonte Boa; 1 ♂ Potaro.

604. *H. cedon* Drnce.

1 ♂ La Oroya; 1 ♂ Allianca; 1 ♀ Rio Demerara; 1 ♀ La Union, Canra.

605. *H. venezuelensis* Rothsch.

3 ♂♂ Palma Sola, Venezuela.

606. *H. jonesi* Rothsch.

2 ♂♂ Castro, Parana.

607. *H. batesi* Rothsch.

1 ♂ Teffé (Mathan); 1 ♀ Amazonas (Bates) (Felder coll.).

608. *H. obvia* Dogn.

2 ♂♂ Aroewarwa Creek ; 3 ♂♂ La Vuelta ; 1 ♂ La Union, Caura ; 1 ♂ Mariña, Caura.

609. *H. coniata* Hamps.

15 ♂♂ Agualani.

610. *H. pseudoconiata* Rothsch.

1 ♂, 1 ♀ Agualani ; 1 ♂, 1 ♀ Limbaui.

611. *H. apicipunctata* Schaus.

7 ♂♂ Santo Domingo ; 4 ♂♂ Oconeque ; 1 ♂ Rio Inambari ; 1 ♂ Tinguri.

612. *H. dinellii* Rothsch.

1 ♂ La Hayada, Tucuman, 1300 m., December 1901 (Dinelli).

613. *H. racema* Schaus.

1 ♂ La Union, Carabaya.

614. *H. cuneipuncta* Rothsch.

1 ♂ Vera Cruz, Mexico.

615. *H. stuarti* Rothsch.

1 ♀ Reyes, August 7, 1895 (Stuart).

616. *H. pulveria* Schaus.

1 ♂ Santo Domingo ; 1 ♂ Costa Rica (Underwood).

617. *H. liparoides* Rothsch.

2 ♂♂ Aroewarwa Creek ; 3 ♂♂ Fonte Boa ; 1 ♂ La Union, Carabaya.

618. *H. aurantiaca* Rothsch.

1 ♂ Allianca ; 1 ♂ La Vuelta.

619. *H. lacteogrisea* Rothsch.

2 ♂♂ La Vuelta.

620. *H. contempta* Rothsch.

2 ♂♂ Fonte Boa ; 1 ♀ San Ramon, Nicaragua, 185 miles above C. Gracias, 375 ft., June 1905 (Palmer).

621. *H. ptenostomoides* Rothsch.

This may be a very aberrant ♀ of *oruboides*, but it does not agree with my undoubted ♀ from Tinguri.

1 ♀ Santo Domingo ; 1 ♀ Corcovado.

622. *H. stipulatoides* spec. nov.

Similar to *stipulata*, but markings less distinct, and hindwings rufous buffy yellow.

Hab. 1 ♂ Christianaburg, Demerara; 1 ♂ Suapure, Venezuela; 1 ♂ Aroewarwa Creek; 1 ♂ British Guiana; 1 ♂ Rio Demerara; 3 ♂♂ La Vuelta; 1 ♂ La Union, Caura; 1 ♂ La Union, Carabaya; 1 ♂ Maripa; 1 ♂ Fonte Boa; 1 ♂ Codajas.

623. *H. stipulata* Rothsch.

1 ♂ Allianca; 6 ♂♂, 1 ♀ La Oroya; 4 ♂♂ Tinguri; 5 ♂♂, 1 ♀ Cuschi; 1 ♂, 1 ♂ Pozuzu; 1 ♂ Santo Domingo; 1 ♂ Tuis, Costa Rica; 1 ♀ Caradoc, Marcapata; 1 ♀ Chulumani.

624. *H. nebulosa* Rothsch.

6 ♂♂, 10 ♀♀ Fonte Boa; 1 ♂ Quevedo; 1 ♂ La Oroya; 1 ♂ Carondelet, Ecuador (Flemming & Miquetta.)

625. *H. squalida* Herr.-Schaeff.

15 ♂♂, 1 ♀ Fonte Boa; 1 ♂ Obidos; 1 ♂, 3 ♀♀ said to be La Plata (town); 1 ♂ San to Antonio do Javary; 1 ♀ Castro, Parana.

626. *H. polydonta* Hamps.

1 ♂ Quevedo; 1 ♂ Colombia; 2 ♂♂ Popayan (Lehmann); 7 ♂♂ La Oroya; 1 ♂ Iquitos, 1893 (Stuart); 2 ♂♂ Caparo.

627. *H. mandus* Herr.-Schaeff.

Sir George Hampson has united under the name of *rhomboidea* Sepp a number of species, among others *mandus*. The figure of *rhomboidea* to my mind is so bad that it is quite unlike any species of *Halisidota*; it therefore must be rejected altogether. The true *mandus* is, I believe, confined to the Rio district, and I have two cotypes.

1 ♂ Nova Friburgo; 1 ♀ Rio de Janeiro; 1 ♂, 1 ♀ Brazil (Felder coll.).

628. *H. nonagrioides* spec. nov.

♂. Pectus and legs buff; head, antennae, and thorax buffish clay-colour, anterior portion of patagia paler; abdomen orange buff.—Forewing buff, discal area somewhat semihyaline, median nervure brown; beyond apex of cell the outer two-fifths of wing with long narrow cuneate darker markings in the internervular spaces; longitudinal hair-lines of darker colour in cell.—Hindwing semihyaline silky cream-white.

♀. Similar but much larger, the darker markings on forewings except on median nervure almost obsolete.

Length of forewing: ♂ 22 mm.; ♀ 26 mm.

Hab. 2 ♂♂, 2 ♀♀ Caracas, Venezuela; 1 ♂ Valencia, Venezuela; 3 ♂♂ Merida; 3 ♂♂, 2 ♀♀ Sapucay; 1 ♂ Oconeque; 1 ♂ São Paulo; 1 ♂ Minas Geraes.

629. *H. pseudomanda* spec. nov.

♂. Similar to *mandus*, but the central longitudinal band of forewing almost absent and a discocellular round brown stigma.

♀. Larger and paler, and stigma also larger and more distinct.

Hab. 8 ♂♂, 2 ♀♀ La Oroya, Carabaya; 1 ♂ Santo Domingo; 1 ♂ Tinguri; 1 ♂ Surinam.

630. *H. strigulosa* Walk.

This is quite a distinct species and has nothing to do with *mandus*.

2 ♂♂ Chiriqui; 1 ♂ Costa Rica (Underwood); 1 ♂ Jalapa; 3 ♂♂, 1 ♀ Orizaba; 2 ♂♂ São Paulo; 1 ♂ Minas Geraës; 1 ♂, 1 ♀? (Felder coll.); 1 ♀ Petropolis; 1 ♂ Tijoco, Brazil, December; 3 ♀♀ Pozuzu; 1 ♂ Valencia, Venezuela; 1 ♀ Rio de Janeiro; 3 ♂♂ Concordia Cafetal, Jinotega, 4400 ft., March 1906 (M. G. Palmer); 1 ♀ San Jacinthe Valley, Theophilo Ottoni, Minas Geraës, 1907-8 (F. Birch).

631. *H. ochracea* Moeschl.

6 ♂♂, 4 ♀♀ São Paulo; 1 ♀? (Felder coll.); 2 ♂♂ La Oroya; 1 ♂ Orizaba; 1 ♂ Castro, Parana; 1 ♂ Rio de Janeiro; 1 ♀ Fonte Boa.

632. *H. nubilosa* Rothscl.

5 ♂♂ Santo Domingo; 1 ♂ Oconeque; 1 ♂ La Oroya.

633. *H. oblonga* Rothscl.

6 ♂♂, 2 ♀♀ Santo Domingo; 1 ♂ Oconeque.

634. *H. quadrata* spec. nov.

♂. Allied to *nubilosus*, but wings much shorter and broader, giving the insect a square appearance. Ground colour of wings much more buff, not cream-colour, and the markings rufous chestnut, not dark brown.

Length of forewing: 26-28 mm.

Hab. 1 ♂ Oconeque, Carabaya; 1 ♂ Limbani.

635. *Halisidota* spec.

1 ♂ Ibarra, May 1897 (Rosenberg). This is evidently a fine new species, but the specimen is in too damaged a condition to describe.

636. *H. atrimaculata* Hamps.

1 ♂ San Jacinto, Merida (Briceño).

637. *H. angulata* spec. nov.

♂. Allied to *quadratus*. Pectus, head, antennae, and thorax brownish buff; abdomen paler.—Forewing buffy yellow, marked all over with irregular rufous half-moons and streaks; a dark brown stigma at end of cell, from which proceeds

a rectangular rufous band, the longer arm reaching the termen, the shorter the costa.
—Hindwing buff.

♀. Similar, but larger and paler.

Length of forewing: ♂ 21 mm.; ♀ 26 mm.

Hab. 8 ♂♂, 1 ♀ Santo Domingo, Carabaya; 3 ♂♂ La Oroya.

638. *H. flavorufa* spec. nov.

♂. Legs and pectus dirty buff; head brownish buff; thorax buff thickly dusted with rufous; abdomen rufous buff.—Forewing primrose yellow dusted all over with rufous speckles; a patch within cell near apex, a large stigma, a broad streak beyond stigma and a patch on vein 1 beyond the centre rufous, the stigma with cinnamon centre.—Hindwings semihyaline cream-buff.

Length of forewing: 23 mm.

Hab. 1 ♂ Potaro, Brit. Guiana; 1 ♂, 1 ♀ Carondelet, Ecuador (Flemming & Miquetta).

639. *H. nebulosa* spec. nov.

♂. Pectus and legs creamy white; fore-coxae orange; antennae testaceous; thorax buff densely powdered with brown; abdomen reddish buff.—Forewing buffy cream densely powdered with rufous; an irregular rufous band from base along median vein to termen.—Hindwing buff.

♀. Larger, paler, and less densely powdered with rufous, median band almost obsolete.

Length of forewing: ♀ 19 mm.; ♀ 23 mm.

Hab. 4 ♂♂ Fonte Boa, Upper Amazons; 1 ♂ La Union, Carabaya; 5 ♂♂, 1 ♀ Allianca; 4 ♂♂, 1 ♀ Calama; 1 ♂ La Oroya; 1 ♀ San Ernesto.

640. *H. subfasciata* spec. nov.

♂. Pectus, legs, head, and antennae buff; thorax buff slightly irrorated with brown; abdomen brownish buff.—Forewing pale yellow crossed by six or seven irregular wavy cinnamon bands.—Hindwing semihyaline cream-buff.

Length of forewing: 19 mm.

Hab. Sapucay, Paraguay.

641. *H. annulosa* Walk.

1 ♀ Ocampo, El Chaco, Argentina, November 1905 (Venturi); 1 ♀ Maraval, August 1891; 4 ♂♂, 6 ♀♀ La Union, Caura; 7 ♂♂, 2 ♀♀ Fonte Boa; 2 ♂♂, 1 ♀ Buenavista; 4 ♂♂ La Union, Carabaya; 2 ♂♂, 1 ♀ Rio Demerara; 2 ♂♂ Aroewarwa Creek; 1 ♂ Allianca; 1 ♂ Potaro; 1 ♂ Valencia, Venezuela; 1 ♀ Rio de Janeiro; 1 ♂, 1 ♀ Guadalajara; 1 ♀ Costa Rica (Underwood); 3 ♂♂, 1 ♀ Orizaba; 1 ♀ Santo Domingo; 1 ♀ Pozuzu; 1 ♀ Asahar de Cartago; 1 ♂ Brazil; 1 ♂ Guayaquil, W. Ecuador (v. Buchwald); 1 ♂, 2 ♀♀ Caparo; 1 ♂ Pebas, Amazonas; 1 ♀ Tumatmari; 1 ♀ Jalapa.

642. *H. caterulata* (Hübner).

1 ♂, 1 ♀ Tucuman (J. Steinbach).

643. *H. walkeri* spec. nov.

♂. Pectus, head, and thorax buff; antennae pale brown; abdomen clay-buff. —Forewing buff reticulated with rufous brown, an antemedian and postmedian transverse band of rufous brown, between the termen and the postmedian band, a short band from costa to vein 8. —Hindwings semihyaline creamy white.

♀. Similar, but larger and darker.

Length of forewing: ♂ 13.5 mm.; ♀ 16 mm.

Hab. La Union, Caura.

71 ♂♂, 15 ♀♀.

643A. *H. walkeri major* subsp. nov.

Differs in its much larger size.

Length of forewing: ♂ 17 mm.; ♀ 19–20 mm.

Hab. 1 ♂ Amapete Valley, Trinidad, July 1902; 1 ♂ Pambilán, Ecuador; 1 ♂ Cachabi (Rosenberg); 1 ♀ Port of Spain, Trinidad; 1 ♂ Cananche, Colombia; 1 ♂ Valencia, Venezuela; 1 ♀ S. Javier; 2 ♂♂, 3 ♀♀ Fonte Boa; 5 ♂♂, 1 ♀ Aroewarwa Creek; 1 ♀ Caparo; 1 ♂ Codajas; 1 ♂ Salidero, N.W. Ecuador, March 1901 (Flemming & Miquetta); 1 ♂ Tuis; 1 ♂, 1 ♀ La Merced, Chanchamayo; 1 ♂ Rio Dagna.

644. *H. buchwaldi* spec. nov.

♂. Similar to *walkeri*, but much paler, and the transverse bands obsolete; the stigma on forewing larger.

Hab. 1 ♂, 1 ♀ Rio Demerara; 1 ♂ Potaro; 1 ♂ Makasaka, Sta. Marta (V. de Andreis); 5 ♂♂, 6 ♀♀ Quevedo; 4 ♂♂, 1 ♀ Fonte Boa; 1 ♂ La Union, Carabaya; 1 ♀ Tabaquite, Narieva Distr., Central Trinidad; 1 ♀ S. Javier, Rio Cachabi (Flemming & Miquetta); 1 ♀ Aroewarwa Creek; 2 ♂♂, 1 ♀ La Union, Caura; 1 ♂ Tijnco, Brazil, December; 2 ♂♂ Sapucay; 1 ♀ Santo Antonio do Javary; 4 ♂♂, 2 ♀♀ São Paulo; 1 ♂ Caparo; 1 ♀ Paraguay (Dr. Bohls); 1 ♂ Castro, Parana; 1 ♂ Petropolis; 1 ♀ Buenavista; 1 ♀ Maripa, Caura.

645. *H. minuta* spec. nov.

♂. The smallest species I have seen. Pectus and legs buff; head, antennae, and thorax buffish brown; abdomen brownish buff. —Forewing pale buffy brown streaked and irrorated with blackish brown, a larger splash of same colour at tornus. —Hindwing buff.

Length of forewing: 11.5 mm.

Hab. La Oroya, Carabaya.

1 ♂.

646. *H. curta* spec. nov.

♂. Pectus and legs pale cinnamon; antennae cinnamon; head and thorax cinnamon olive; abdomen pale cinnamon? —Forewing pale cream cinnamon with irregular patches of greenish olive-yellow, and dotted with black. —Hindwing cinnamon sooty brown.

Length of forewing: 14 mm.

Hab. Fonte Boa, Upper Amazons.

1 ♂.

647. *H. amaxiaeformis* spec. nov.

♂. Shaped like an *Amasia*. Pectus cinnamon buff; head, thorax, and antennae pale buffish cinnamon; abdomen brownish buff.—Forewing pale buffish cinnamon reticulated with rufous cinnamon.—Hindwing semihyaline cream-colour.

♀. Resembles a small *H. nonagrioides*, but ground colour golden buff.

Hab. Rio Cayapas, N.W. Ecuador (Flemming & Miquetta).

1 ♂, 1 ♀.

648. *H. uniformis* spec. nov.

Uniform buffish clay-colour except hindwings, which are hyaline grey.

Hab. Rio Demerara.

1 ♀.

649. *H. umbrina* spec. nov.

♂. Pectus and legs pale buffy wood-brown; head and tegulae and antennae wood-brown; thorax and patagia paler, more yellowish; abdomen dark sooty black-brown.—Forewing dull orange-buff blotched and banded with dark wood-brown.—Hindwing deep black-brown.

Length of forewing: 16 mm.

Hab. Fonte Boa, Upper Amazons.

3 ♂♂.

650. *H. leucanina* Feld.

1 ♂ Oconeque; 27 ♂♂, 8 ♀♀ Santo Domingo; 5 ♂♂ Agualani; 3 ♂♂, 1 ♀ Limbani; 3 ♂♂ Merida; 45 ♂♂, 13 ♀♀ Bogotá (20 ♂♂, 2 ♀♀ Child); 2 ♂♂ Nova Friburgo; 6 ♂♂, 1 ♀ São Paulo; 1 ♀ Bogotá, Type (Felder coll.); 3 ♂♂ Rio de Janeiro; 1 ♂ Minas Geraes.

651. *H. melaleuca* (Feld.).

1 ♂ Bogotá; 1 ♀ Bogotá, Type (Felder coll.).

652. *H. semibrunnea* Druce.

3 ♂♂, 1 ♀ La Oroya; 1 ♀ La Union, Carabaya; 1 ♀ Santo Domingo.

653. *H. roseofasciata* Druce.

1 ♂ Bogotá (Child).

654. *H. rusca* (Schaus).

6 ♂♂ São Paulo.

655. *H. interstriata* Hamps.

1 ♂ Castro, Parana.

656. *H. hadenoides* Rothschild.

2 ♀♀ Iquitos (Stuart); 18 ♂♂ Fonte Boa; 1 ♂ Allianca; 1 ♀ Codajas.

657. *H. conspicua* (Maass.).

5 ♂♂ Agualani; 1 ♂ Limbani.

658. **H. melanoproctis** Hamps.

4 ♂♂ Agualani; 2 ♂♂ Limbani.

659. **H. maasseni** Rothsch.

2 ♂♂, 2 ♀♀ Limbani; 1 ♂ Agualani.

660. **H. semifulvus** (Druce).

1 ♂ Agualani; 1 ♂ Limbani; 1 ♂ Rio Huacamayo.

661. **H. ockendeni** Rothsch.

8 ♂♂ Agualani; 1 ♂ Oconeque.

662. **H. cinnamomea** Rothsch.

1 ♀ Rio Huacamayo; 2 ♀♀ Limbani; 1 ♀ Agualani.

663. **H. muscosa** Rothsch.

4 ♀♀ Agualani; 2 ♀♀ Limbani; 1 ♀ Huancabamba.

664. **H. nigrescens** Rothsch.

4 ♀♀ Agualani.

665. **H. rufocinnamomea** Rothsch.

1 ♂ Agualani; 1 ♂ Oconeque; 1 ♂ Limbani.

666. **H. vitreata** Hamps.

4 ♂♂, 5 ♀♀ Agualani.

667. **H. bombycina** Rothsch.

1 ♀ Limbani.

668. **H. anapheoides** Rothsch.

Vulcan de Chiriqni, 5000—9000 ft. (Watson).

669. **H. flavescens** Rothsch.

1 ♂ Sonora, New Mexico, September 1 to 10, 1906 (Poling).

670. **H. pallida** (Schans).

2 ♂♂ Onaca, Sta. Marta; 4 ♂♂ Oconeque; 9 ♂♂ La Oroya; 1 ♂ Coreato, Canca (Paine & Brinkley); 2 ♂♂ Yungas de la Paz; 4 ♂♂, 2 ♀♀ Santo Domingo; 2 ♂♂ Paramba; 1 ♂ Cushi; 4 ♂♂ Huancabamba; 1 ♂, 3 ♀♀ Merida; 1 ♀ Rio Longo; 1 ♂ Pern; 1 ♀ Costa Rica (Underwood); 1 ♂, 1 ♀ Buenavista; 1 ♀ Marcapata, E. Pern, 4500 ft.; 1 ♀ Lita, Ecuador, 3900 ft. (Flemming).

671. **H. arenacea** (Schans).

5 ♂♂ Huancabamba; 7 ♂♂ Santo Domingo; 2 ♂♂ Cushi; 1 ♂ La Oroya.

672. *H. iridescens* (Schaus).

1 ♂ Quevedo ; 1 ♀ La Oroya ; 1 ♂, 1 ♀ Minas Geraës.

673. *H. punctata* Rothsch.

8 ♂♂ Santo Domingo,

674. *H. baritoides* Rothsch.

1 ♂ Pebas, Amazonas, November 1906 (M. de Mathan) ; 1 ♂ Fonte Boa.

675. *H. inexpectata* spec. nov.

♂. Legs dark brown ; pectus, palpi, head, thorax, and first and last three segments of abdomen above bright brownish orange ; antennae black ; central four segments of abdomen above sooty brownish black.—Forewing semihyaline greyish white, strongly washed and shaded with mouse-grey on basal half ; a deep mouse-grey patch at apex of cell, and a broad band of mouse-grey from just before termen to vein 5 ; all veins deep grey.—Hindwing small and triangular, costal two-thirds semihyaline greyish white ; veins deep grey, inner one-third dark mouse-grey ; a large mouse-grey patch at end of cell.

♀. Similar, but larger, and hindwing more normal, and the whole abdomen above sooty black except last two segments.

Length of forewing : ♂ 24 mm. ; ♀ 30 mm.

Hab. 7 ♂♂ Tinguri, Carabaya ; 2 ♂♂ La Union, Carabaya ; 2 ♂♂ Rio Huacamayo ; 4 ♀♀ Caracas, Venezuela.

676. *H. humosa* (Dogn.).

1 ♀ Chanchamayo.

677. *Metaxanthia vespiformis* Drnce.

1 ♂ Muzo, Colombia, July 1903 (M. de Mathan) ; 2 ♀♀ Cananche ; 2 ♀♀ Potaro ; 1 ♀ Pebas, Amazonas, December 1906 ; 2 ♀♀ Paramba, 3500 ft., April 1897 (Rosenberg) ; 1 ♀ Carillo, Costa Rica, June, July 1903 (Underwood).

678. *M. threnodes* Drnce.

53 ♂♂ La Union, Cauca ; 1 ♂ La Vuelta ; 3 ♂♂, 2 ♀♀ Aroewarwa Creek.

679. *Agorea rectilinea* Burm.

2 ♂♂, 5 ♀♀ Ciudad de Tucuman (Dinelli, Monetti) ; 6 ♂♂ Tucuman (Steinbach, Dinelli) ; 1 ♀ Salta, N. Argentina (Steinbach) ; 1, Argentine, Prov. Tucuman (G. A. Baer) ; La Soledad, Entre Rios, December 13, 1901 (Miss Britton) ; 3 ♂♂ Castro, Parana.

680. *A. longicornis* Herr.-Schaeff.

1 ♂, 1 ♀ Sapucay.

681. *A. schausi* Rothsch.

3 ♂♂, 1 ♀ Orizaba ; 1 ♂ Bogava, Chiriqui, 800 ft. (Watson).

682. **A. ockendeni** Rothsch.

2 ♂♂, La Oroya.

683. **A. citrinotincta** Rothsch.

3 ♂♂ Onaca, Sta. Marta; 1 ♀ Merida.

684. **A. boettgeri** Rothsch.

1 ♂ Huancabamba.

685. **A. klagesi** Rothsch.

1 ♂, 1 ♀ Fonte Boa.

686. **A. nigrostriata** Rothsch.

1 ♀ Ciudad de Tucuman (Monetti).

687. **A. semivitre**a Rothsch.

1 ♀ Cachabi (Rosenberg); 1 ♀ Boquete, Chiriqui, 3500 ft. (Watson); 5 ♂♂, 3 ♀♀ Maripa, Caura; 1 ♂ Port of Spain; 1 ♂ Fort Akaym, Rio Demerara; 2 ♂♂ Merida; 1 ♂ St. George's, British Guiana, November 1891 (W. Ellacombe); 3 ♂♂, 3 ♀♀ São Paulo; 2 ♂♂ Guayaquil; 9 ♂♂, 3 ♀♀ La Union, Caura; 1 ♀ Palma Sola, Venezuela; 2 ♂♂ Caparo; 1 ♂ Paramaribo, December 1892 (W. Ellacombe); 1 ♂ Buenavista; 1 ♂ Ciudad Bolivar, Venezuela; 1 ♂ Codajas; 1 ♀ Valencia, Venezuela.

688. **Bituryx intacta** Walk.

2 ♂♂ Fonte Boa; 1 ♀ Codajas.

689. **B. venosata** Walk.

1 ♂ Tinguri.

690. **B. pellucida** (Sepp).

This is undoubtedly the insect figured by Sepp. The *Agores*a which has hitherto been identified as the *pellucida* of Sepp, I have had to rename *semivitre*a.

1 ♂ Aroewarwa Creek; 1 ♀ La Union, Caura.

691. **B. grisea** Dogn.

1 ♂ Santo Domingo.

692. **B. diversipes** Walk.

1 ♂ Caracas, Venezuela.

693. **B. hoffmannsi** Rothsch.

4 ♂♂ Allianca.

694. **B. mathani** Rothsch.

6 ♂♂, 2 ♀♀, Cananche; 2 ♂♂ Muza, August 1903 (Mathan); 1 ♂, 1 ♀ La Palma; 1 ♀ Guadalite.

695. *Neritos macrostidza* Hamps.

1 ♂ Fonte Boa ; ? 1 ♀ San Ernesto.

696. *N. repanda* Walk.

3 ♂♂, 1 ♀ La Oroya ; 1 ♂ Fonte Boa ; 1 ♂ Rio Huacamayo.

697. *N. discobola* Hamps.

1 Santo Antonio do Javary ; 1 ♂ Fonte Boa.

698. *N. sorex* Druce.

7 ♂♂, 2 ♀♀ La Union, Carabaya ; 5 ♂♂, 5 ♀♀ Fonte Boa ; 3 ♂♂ San Ernesto ; 1 ♂ Santo Domingo ; 1 ♀ Buenavista ; 1 ♀ British Guiana.

699. *N. leucoplaga* Hamps.

1 ♂ La Union, Carabaya.

700. *N. prophaea* Schaus.

1 ♀ Tucson, Arizona, May 1903 (Osler).

701. *N. rosacea* Rothsch.

1 ♂ Palma Sola, Venezuela.

702. *N. affinis* Rothsch.

8 ♂♂ Aroewarwa Creek ; 4 ♂♂ Fonte Boa ; 1 ♂ Buenavista.

703. *N. griseotincta* Rothsch.

1 ♂, 7 ♀♀, Aroewarwa Creek.

704. *N. abdominalis* Rothsch.

2 ♂♂ Fonte Boa.

705. *N. steinbachi* Rothsch.

1 ♂, 1 ♀ Buenavista.

706. *N. sanguidorsia* (Schaus).

1 ♀ Potaro ; 2 ♂♂ Caparo, Trinidad (F. Birch).

707. *N. holophaea* Hamps.

2 ♂♂ Fonte Boa ; 1 ♂ Aroewarwa Creek.

708. *N. psammas* Cram.

This is not the ♂ of *onytes* Cram.

2 ♂♂ Caparo, 3 ♂♂ Aroewarwa Creek ; 1 ♂ Calama ; 2 ♂♂ Potaro ; 1 ♂ Tumatumari ; 1 ♂ St. Laurent de Maroni.

709. **N. onytes** Cram.

This is identical with *cotes* Druce and not with *psammus* Cram.

1 ♀ Paramaribo, December 1892 (C. W. Ellacombe); 1 ♀ Potaro.

710. **N. coccinea** Schans.

1 ♂ Aroewarwa Creek ; 1 ♂ Fonte Boa.

711. **N. hampsoni** Rothsch.

3 ♂♂ Fonte Boa.

712. **N. inequalis** Rothsch.

3 ♂♂ San Ernesto ; 1 ♂ Salampioni ; 3 ♂♂ Palcazu, Dept. Junin (Sedlmayr) ; 4 ♂♂ La Union, Carabaya ; 2 ♂♂ Fonte Boa ; 1 ♂ Cajon, Cuzco ; 4 ♂♂ Yungas de la Paz ; 1 ♂, 1 ♀ Aroewarwa Creek.

713. **N. persimilis** Rothsch.

8 ♂♂, 1 ♀ La Oroya ; 2 ♂♂, 2 ♀♀ Aroewarwa Creek ; 1 ♂ Codajas.

714. **N. triangularis** Rothsch.

1 ♂, 5 ♀♀ La Oroya ; 2 ♂♂ Chanchamayo ; 1 ♂ Pozuzu ; 1 ♂ Yungas de la Coroico ; 1 ♂ Cuzco, Peru ; 1 ♂ Potaro.

715. **N. species.**

This may be the true ♀ of *macrostidza*, but I am not sure.

3 ♀♀ São Paulo.

716. **N. cyclopera** Hamps.

1 ♂ Fonte Boa ; 2 ♀♀ Paramba, Ecuador (Rosenberg).

717. **N. androconiata** Rothsch.

1 ♂ La Union, Carabaya ; 2 ♂♂, 1 ♀ La Oroya ; 1 ♂ Tinguri ; 3 ♀♀ Fonte Boa.

718. **N. lavendulae lavendulae** Rothsch.

3 ♀♀ Aroewarwa Creek ; 2 ♂♂ Fonte Boa.

718A. **N. lavendulae meridionalis** Rothsch.

2 ♂♂ Rio de Janeiro.

719. **N. perversa** Rothsch.

1 ♂ Fonte Boa ; 2 ♀♀ Aroewarwa Creek.

720. **N. drucei** Rothsch.

2 ♂♂ Aroewarwa Creek.

721. *N. nigricollis* Dogn.

2 ♂♂ La Union, Carabaya.

722. *N. steniptera* Hamps.

5 ♂♂ Fonte Boa (1 = Type of *Areomolis basalis* Rothsch.); 1 ♂ Santo Antonio do Javary 2 ♂♂, 2 ♀♀ Aroewarwa Creek.

723. *N. ockendeni* (Rothsch.).

3 ♂♂, 1 ♀ La Oroya; 3 ♂♂, 2 ♀♀ Fonte Boa; 1 ♀ Aroewarwa Creek.

724. *Aemilia ambigua* (Stretch).

2 ♂♂, 1 ♀ Durango, Col. (Oslar); 3 ♂♂ Glenwood Springs, Col. (Oslar); 1 ♂ Colorado.

725. *Ae. rubriplaga* (Walk.).

1 ♂ Zamora, Ecuador (Baron); 1 ♂, 1 ♀ Santo Domingo; 3 ♀♀ Merida; 1 ♂ Coreato, Canca (Paine & Brinkley); 1 ♂ San Antonio, W. Colombia, 5800 ft., November 1907 (M. G. Palmer).

726. *Ae. crassa* (Walk.).

1 ♂ Paramba, Ecuador, January—August 1899 (Flemming); 3 ♂♂ Huanca-bamba; 1 ♂ Lita, Ecuador, 3000 ft. (Flemming); 1 ♂ Merida; 1 ♀ Limbani; 1 ♀ Agualani; 3 ♂♂ Jimenez, W. Colombia, 1600 ft., June 1907 (M. G. Palmer).

727. *Ae. pagana* (Schaus).

1 ♂, 4 ♀♀ Castro, Parana.

728. *Ae. brunneipars* Hamps.

1 ♂, 1 ♀ Limbani; 8 ♂♂, 6 ♀♀ Agualani; 1 ♂ Oconeque; 1 ♂ La Oroya.

729. *Ae. melanchra* (Schaus).

3 ♂♂, 1 ♀ Oconeque.

730. *Ae. mineosa* (Druee).

5 ♂♂ Oconeque; 1 ♀ Popayan (Lehmann).

731. *Tyria jacobaeae* (Linn.).

1 ♂ Bedford Purliens, Wansford, June 30, 1903 (W. Rothschild); 3 ♂♂, 18 ♀♀ Tring, Herts, May 1899 (A. Goodson); 1 ♀ Great Britain (whole three margins broadly scarlet); 1 ♀ Great Britain (very small, all red replaced by pinkish yellow); 9 ♂♂, 4 ♀♀ Folkestone, Kent (White) (all more or less blotched or off-coloured individuals); 2 ♂♂, 4 ♀♀ May 11, 1899, Sark, Channel Islands (E. Hartert); 1 ♂ Herm, Channel Islands, May 7, 1899 1, ♂, 1 ♀ Jersey, Channel Islands (E. Hartert); 1 ♀ Ringwood, Hants (C. J. Fowler) (left side pale, very large); 4 ♂♂ Würshofen, Bavaria, July 23—29, 1905 (O. Neumann); 3 ♂♂,

1 ♀ Schwalbach (W. Rothschild); 1 ♂ Wiesbaden; 1 ♂ Crimmitschan, June 8, 1898 (Th. Wagner); 5 ♀♀ Liebenau, Bohemia, July 3, 1906 (Em. Grädl); 4 ♂♂, 3 ♀♀ ? (Austria?) (Felder coll.); 2 ♂♂ Digne, Basses Alpes, June 17—24, 1908 (W. Rothschild & K. Jordan); 1 ♂ Grenoble, July 5, 1908 (W. Rothschild); 1 ♂, 1 ♀ South of France (Groum-Grschmailo coll.); 1 ♂ Luchon, July 9, and 2 ♀♀ Cantarets, July 22—28, 1905 (W. Rothschild & E. Hartert); 1 ♂ Vallée du Lys, 1100 m., June 7, 1904 (E. Hartert); 1 ♂, 1 ♀ Bern, Jura; 1 ♀ Ficuzza, near Busambra, Sicily, June 13, 1907 (O. Neumann); 1 ♂ Pescocostanza, Italy, July 23, 1906 (O. Neumann); 7 ♂♂, 3 ♀♀ San Ildefonso, Segovia, Spain, June—August 1906 (M. de la Escalera); 1 ♂ Marmarosszuget, Transylvania, July 1901 (Farkas Sandor); 1 ♂, 1 ♀ Sarepta and 2 larvae ? (Groum-Grschmailo coll.).

732. *Euchlaenidia trancisa* (Walk.).

1 ♂ Rio de Janeiro.

733. *E. bimaculata* Druce.

This is quite distinct.

1 ♂ Sapucay; 1 ♂.

734. *E. neglecta* spec. nov.

♂. Pectus, legs, head, antennae, thorax, and abdomen fuscous brown.—Forewing greyish brown, veins paler; an oblique cream-coloured band crosses the wing from costa across end of cell to tornus.—Hindwing orange, an ovate black patch at tornus.

Length of forewing: 13 mm.

Hab. Sta. Catharina.

1 ♂.

735. *E. ockendeni* spec. nov.

♀. Pectus and legs dark fuscous; palpi yellow, last joint black; frons yellow with large central black patch; antennae black; collar yellow; thorax black-brown; abdomen above orange-buff with broad central dorsal black band.—Forewing black-brown with the veins buff; a broad oblique outwardly curved buffy orange band reaches from the costa across end of cell to just before tornus.—Hindwing orange, a border of black from before termen to tornus; this border is very broad from termen to vein 4, then very narrow to vein 2, and again broad from vein 2 to tornus.

Length of forewing: 22 mm.

Hab. La Union, Carabaya.

1 ♀.

736. *Holomelina cocciniceps* (Schaus).

1 ♀ Larima Co., Col., August 1891, 7000 ft.

737. *H. semirosea* (Druce).

2 ♂♂ Mexico City.

738. *H. mathani* spec. nov.

♀. Legs, pectus, head, antennae and thorax dark wood-brown; abdomen reddish orange, a narrow central dorsal black line.—Forewing deep wood-brown.—Hindwing dark brick-red, a black border from before termen to tornus, somewhat narrower between veins 2 and 4.

Length of forewing: 19 mm.

Hab. La Palma and Gnadallite, Cundinamarca, Colombia, August 1903 (M. de Mathan).

2 ♀ ♀.

739. *H. laeta* (Grote).

12 ♂♂ Huachuca Mts., Arizona, August 1903 (Oslar); 5 ♂♂ Nogales, Arizona, August 1903 (Oslar); 2 ♂♂ Palmerie, Arizona (Biedermann); 1 ♂ Huachuca Mts., August 16, 1901 (Brenning).

740. *H. aurantiaca* (Hübner).

1 ♂, 1 ♀ Vera Cruz, Mexico; 1 ♂, 1 ♀ Iowa (Meyer coll.); 1 ♀ Prescott, Arizona, July 7, 1902 (Oslar); 1 ♂, 2 ♀♀ Monacknock, New Hampshire (F. Birch); 1 ♂ United States (Land coll.); 7 ♂♂, 4 ♀♀ Texas; 2 ♂♂, 2 ♀♀ N. America; 5 ♂♂, 1 ♀ Iowa; 1 ♂, 4 ♀♀ Canada; 1 ♂, 3 ♀♀ ?; 2 ♂♂ Alleghany Pass; 1 ♂ Bexar Co., Texas (Attwater); 3 ♂♂, 5 ♀♀ Grand Junction, Col., July, 1901 (E. J. Oslar); 1 ♂, 1 ♀ Babylon, Long Island, July 3, 1902 (N. Charles Rothschild and F. Gaynor); 5 ♂♂, 1 ♀ Orizaba; 1 ♀ Montreal to Quebec (Grapes); 6 ♂♂, 4 ♀♀ Bear Creek, Morrison, Col. (Oslar); 2 ♂♂, 1 ♀ Sanford, Florida, May and June 1895.

741. *H. ferruginosa* (Walk.).

This insect is quite distinct from *aurantiaca*, and is always larger.

18 ♂♂, 2 ♀♀ Durango, Col. (Oslar); 10 ♂♂ Glenwood Springs, Col. (Oslar); 11 ♂♂, 4 ♀♀ Larima Co., Col., 5000–7000 ft.; 4 ♂♂, 4 ♀♀ Grand Junction, Col., July 1901 (Oslar); 3 ♂♂ Sapelle Cañon, New Mexico, July 1902 (E. J. Oslar); 5 ♂♂ Texas; 2 ♂♂ Colorado; 9 ♂♂, 1 ♀ Chimney Gulch, Col., April to June 1901 (Oslar); 1 ♂ Colorado (Mason); 1 ♂ Alleghany Pass; 1 ♂ Colorado Springs, Col. (Oslar); 1 ♀ Canada ?; 1 ♂, 1 ♀ ? (Meyer coll.); 3 ♂♂ Monacknock, New Hampshire (F. Birch).

742. *H. opella* (Grote).

1 ♀ ? (Meyer coll.).

743. *H. lata* Grote.

2 ♀♀ Holguin, Cuba (Tollin and H. S. Parish).

744. *Virbia dotata* (Walk.).

2 ♂♂ Pebas, Amazonas, December 1906 (M. de Mathan); 1 ♀ ? (Felder coll.).

745. *V. brevilinea* (Walk.).

1 ♂ Sta. Catharina; 1 ♀ Rio de Janeiro; 1 ♂ ? (Felder coll.).

746. *V. rosenbergi* spec. nov.

♀. Pectus, legs, palpi, antennae, head, and thorax black-brown; abdomen above orange with dorsal black band.—Forewing brown.—Hindwing orange, a narrow black border from base of costa round wing to vein 3, whence to tornus it expands into a large patch; inner margin to tornus orange.

Length of forewing: 22 mm.

Hab. 4 ♀♀ Rio Dagua, Colombia (Rosenberg); 1 ♀ Paramba; 1 ♀ S. Javier; 1 ♀ Balim.

747. *V. lehmanni* spec. nov.

♂ Pectus, legs, **palpi**, head, antennae, and thorax black; abdomen above orange with very broad black dorsal band.—Forewing brownish black.—Hindwing orange with almost even black border. Underside of forewing uniform black-brown.

Length of forewing: 17 mm.

Hab. 3 ♂♂, 1 ♀ Popayan (Lehmann); 1 ♂, 1 ♀ Rio Dagua.

748. *V. varians* Schaus.

1 ♀ Cuzco, Peru, Jan. 1901 (Garlepp).

749. *Virbia* species.

1 ♀ Sta. Catharina, minus an abdomen, very distinct; but I do not want to describe a single ♀ in such condition.

750. *V. zonata* (Feld.).

3 ♀♀ ? (Felder coll.); 3 ♂♂ Jalapa; 5 ♂♂, 1 ♀ Huatuxco, Vera Cruz; 3 ♂♂, 2 ♀♀ Vera Cruz, Mexico; 1 ♂, 1 ♀ Orizaba.

751. *V. divisa* (Walk.).

1 ♂ Jinotega, Nicaragua, 4100 ft., Jan. 1906 (M. G. Palmer); 9 ♂♂ São Paulo; 1 ♂ Sapucay; 1 ♂, 1 ♀ Sta. Catharina; 1 ♂ Bahia (Felder coll.); 4 ♂♂ Tijuco, Brazil, December; 1 ♂ St. George's, British Guiana, Oct. 1891 (C. W. Ellacombe).

752. *V. minuta* (Feld.).

8 ♂♂ La Oroya; 8 ♂♂ Tinguri; 1 ♂ Rio Huacamayo; 1 ♂ Sapucay.

753. *V. mentiens* Walk.

10 ♂♂ Caparo; 1 ♂ Maraval; 1 ♂ Paramaribo, August 1892 (W. Ellacombe); 2 ♀♀ Carupano, December 1891 (W. Ellacombe).

754. *V. parva* Schaus.

4 ♂♂, 3 ♀♀ Quevedo, W. Ecuador (v. Buchwald); 1 ♂ Paramba; 1 ♂, 1 ♀ Chimbo; 1 ♂ Colombia. All the three above species are not synonymous with *medarda* Stoll, but quite distinct.

755. *V. flemmingi* spec. nov.

♂. Similar to *mentiens*, but the wings longer and narrower, and the yellow abdominal area of hindwings does not reach tornus, and the black border is evenly broad from termen to tornus.

♀. Larger, and the black border to hindwings becomes much wider towards tornus.

Hab. 8 ♂♂ Salidero, N.W. Ecuador; 2 ♂♂, 1 ♀ Bulim, Ecuador; 1 ♂ Carondelet; and 1 ♂ Rio Cayapas, N.W. Ecuador, January—April 1901 (Flemming and Miquetta).

756. *V. affinis* spec. nov.

♂. Similar to *parva*, but wings much shorter and broader, and the yellow area of hindwing occupies the whole of the wing except black marginal band, and does not, as in *parva*, consist of a broad discal band only.

♀. Much larger than ♀ *parva*, and shows same differences.

Hab. Paramba, W. Ecuador, 8 ♂♂, 1 ♀; ? 1 ♂ Onaca, Sta. Marta.

757. *V. subapicalis* (Walk.).

1 ♂, 2 ♀♀ Amazons (Bates) (Felder coll.); 1 ♀ Chanchamayo, Jan.—Aug. 1901 (W. Hoffmanns); 1 ♀ Rio Cachiaco (Stuart); 1 ♂, 1 ♀ Fonte Boa; 1 ♂, 1 ♀ Potaro; 1 ♂ St. Laurent de Maroni; 1 ♂, 1 ♀ Itaituba; 1 ♂ Tumatumari; 2 ♂♂ Codajas; 1 ♂ Mouth of Kouron River, Oct. 1905 (E. Le Moulton); 1 ♂ Sta. Catharina; 1 ♀ ?; 3 ♂♂ Rio Huacamayo; 2 ♂♂ La Vuelta; 1 ♂ Tinguri; 1 ♂ La Union, Carabaya; 10 ♂♂ Buenavista.

758. *V. hypophaea* Hamps.

2 ♂♂ Tuis, Costa Rica; 1 ♂ Bulim; 1 ♀ Cachabi (Rosenberg); 1 ♀ Rio Dagna; 1 ♀ Paramba; 1 ♀ Salidero, N.W. Ecuador, March 1901 (Flemming & Miquetta.)

759. *V. xanthopleura* Hamps.

1 ♀ Grenada, W. Indies.

760. *V. ovata* spec. nov.

♀. Differs from ♀ of *subapicalis* in being much larger and the yellow patch on hindwing is much farther away from termen and forms a long, narrow ovate spot.

Hab. Sta. Catharina.

761. *V. strigata* spec. nov.

♂ ♀. All black, an orange streak some 3 mm. wide from base across disc to within almost 2 mm. of margin.

Hab. 1 ♂ Borchland, Surinam, May 1892 (W. Ellacombe); 1 ♀ Tijuco, Brazil; December (W. Schaus).

762. *V. fasciata* spec. nov.

♂. Thorax and head brown; abdomen above black.—Forewing pale chocolate brown, a paler yellowish band from base to beyond apex of cell.—Hindwing yellow, with a very broad black marginal band.

♀. Larger, forewing dark brown, no discal fascia.—Hindwing: the black marginal band so wide as to occupy almost half the area of wing.

Hab. 2 ♂♂ Paramba, W. Ecuador; 1 ♀ Bulim, W. Ecuador.

763. *Antriotricha integra* (Walk.).

1 ♂ Bogotá; 3 ♀♀ Bogotá (Felder coll.).

764. *A. marcessens* (Feld.).

1 ♂, 1 ♀? (Felder coll., ♀ Type); 1 ♀ Zamora, Ecuador, 3000-4000 ft., (O. T. Baron).

765. *Hyalocoa diaphana* (Eversm.).

1 ♂ Sájan, Siberia.

766. *Epimedia oberthueri* spec. nov.

♂. Legs and pectus testaceous; antennae black; head cream-white; thorax cream-white; two black dots on tegulae and four on patagia; abdomen pale testaceous brown.—Forewing pale brownish cream-colour, two black dots at the base, a black dot at lower corner of apex of cell.—Hindwing paler, more whitish.

Length of forewing: 15 mm.

Hab. N. Bailunda, Angola, October 10, 1901 (Pemberton).

1 ♂.

767. *Ep. dialampa* Standl.

2 ♂♂ Uрга (Leder), 1 ♂ Transbaicalia, (all three ex coll. Groum-Grschmailo).

768. *Ep. libyssa* Pünger.

1 ♂ Sebdon, Province Oran, Oct. 1907 (H. Powell) (ex coll. Oberthür, cotype *Emydia powelli*).

769. *Euprepia striata* (Linn.).

1 ♂?, hindwings black, three yellow patches; 1 ♂ Rodna, Transylvania (Farkas Sandor); 1 ♂ Mainz; 1 ♂ Mont St. Michel de Cousson, Digne, 1000-1500 m., July 1, 1908 (K. Jordan); 15 ♂♂ Sila Mts., Calabria, near Botte Donata, July 6-12, 1907, 1000-1800 m. (O. Neumann), 10 have various degrees of darkened hindwings; 10 ♂♂ Digne, Basses Alpes, June 1908 (W. Rothschild and K. Jordan), 2 have dark hindwings; 1 ♂ Germany (Buchecker coll.); 2 ♂♂ Wiesbaden, whitish ground much black; 1 ♂, 1 ♀ Mainz (Groum-Grschmailo coll.); 7 ♂♂, 5 ♀♀ Digne to Mt. St. Michel de Cousson, up to 1200 m., July 2, 1908 (K. Jordan), 5 ♂♂, 3 ♀♀ with much black on hindwings; 1 ♂?; 1 ♂ Dourbes, near Digne, June 25, 1908 (K. Jordan); 1 ♀?, 6 ♂♂ (Felder coll.); 5 ♂♂? with black hindwings, 2 marked Strara 16. 7. 18; 1 ♂ Sila Mts., near Botte Donata, Calabria (O. Neumann); 2 ♂♂ Digne to Mt. St. Michel de Cousson (K. Jordan), and 2 ♂♂, 1 ♀ Digne, Basses

Alpes (W. Rothschild and K. Jordan) with black hindwings; 1 ♀ Switzerland; 4 ♂♂ Austria (3 Felder and 1 Groum-Grschmailo coll.); 76 ♂♂, 2 ♀♀ San Ildefonso, Segovia, Spain, June–August 1906 (M. de la Escalera), the series shows much variation; 6 ♂♂ Amdo, and 1 ♂ Chinghan (Putiato Exp.) (Gronm-Grschmailo coll.), 3 ♂♂ entirely black.

770. *Eu. cribraria cribraria* (Linn.).

This species occurs in four well-marked subspecies.

7 ♂♂, 6 ♀♀? (Felder coll.), 1 Engadine; 3 ♂♂ Isella, 1 ♂, 2 ♀♀ N. Italy, 1 ♀ Caspian, and 1 ♂, 1 ♀ Berlin, 1 ♂, 1 ♀? (Groum-Grschmailo coll.); 1 ♂ Grabowa; 1 ♀ La Grave, Hantes Alpes, 1500–1800 m., July 23, 1908 (W. Rothschild and K. Jordan); 2 ♀♀ Herkulesbad, August 1907 (J. Aszner); 1 ♂ Süsz, August 1, 1901 (W. Rothschild); 24 ♂♂, 8 ♀♀ Tarasp, July 1901 (W. Rothschild), and July 1902 (W. Rothschild and E. Hartert); 21 ♂♂, 3 ♀♀ Silvaplana, July 1901 (Osirnig); 2 ♂♂, 2 ♀♀? (Sand coll.); 1 ♂ Saas Fee, Saas Valley, August 7 to 18, 1908 (Oscar Neumann); 1 ♂ Majori, Gulf of Salerno, May 5 to 10, 1905 (Oscar Neumann); 1 ♀?; 1 ♂, 1 ♀ Granada, Andalusia (C. Ribbe); 1 ♂, 1 ♀ Sierra Nevada, Andalusia (C. Ribbe); 1 ♂ Italia and 1 ♂ Hungaria (Buchecker coll.); 1 ♂ Majella Mts., Italy, July 19 to 20, 1906 (O. Neumann); 2 ♂♂ Pescocostanza, Italy, July 23, 1906 (O. Neumann); 2 ♂♂ Zermatt, August 21 to 29, 1908 (O. Neumann); 7 ♂♂, 1 ♀ Great Britain.

770A. *Eu. cribraria ripperti* Boisd.

1 ♂ Hautes Pyrénées (Groum-Grschmailo coll.). This subspecies is almost entirely black.

770B. *Eu. cribraria bifasciata* Ramb.

1 ♂, 1 ♀ Corsica; 1 ♂ Corsica (Buchecker coll.); 2 ♂♂ Bastelica, Corsica (H. Powell).

770C. *Eu. cribraria chrysocephala* Hübn.

2 ♂♂, 1 ♀? (Felder coll.); 1 ♂, 3 ♀♀ Environs d'Alger, May 1908 (W. Rothschild and K. Jordan); 6 ♂♂ Environs d'Alger, May 1906–7 (Dr. Nissen); 2 ♂♂ Orange Grove, Oum-er-Bia, near Mazagan, Morocco, April 10, 1901 (E. Hartert); 1 ♂? (Sand coll.); 1 ♂ South Russia?; 1 ♂, 1 ♀ Andalusia (Gronm-Grschmailo coll.).

771. *Heliactinidia chiguinda* (Druce).

2 ♂♂, 2 ♀♀ Popayan (Lehmann); 1 ♂ Loja (Dognin); 1 ♂ Peru (Felder coll.).

772. *H. flavivena* Dogn.

1 ♂ Paramba, Ecuador, January–May 1897 (W. F. Rosenberg); 2 ♂♂ Santa Rita, Cauca River (Paine & Brinkley).

773. *H. nigrilinea* (Walk.).

1 ♂ Popayan, Colombia (Lehmann); 1 ♀ San Jacinto Valley, Theophilo Ottoni, Minas Gerais, 1907–8 (F. Birch).

774. *Belemnia cryx* (Fabr.).

4 ♂♂, 2 ♀♀ (Felder coll., 2 ♂♂ marked Amazons, 1 ♀ Bogotá); 8 ♂♂ Teffé, Amazons, November 1907 (M. de Mathan); 39 ♂♂, 32 ♀♀ La Union, Caura; 4 ♂♂ La Union, Carabaya; 1 ♂, 1 ♀ Fonte Boa; 8 ♂♂, 1 ♀ Humayta; 7 ♀♀ Guyapa, Caura; 21 ♂♂, 10 ♀♀ Allianca; 1 ♀ Santa Cruz de la Sierra, E. Bolivia; 2 ♂♂, 2 ♀♀ Province Sara; 3 ♀♀, 1 ♀ Buenavista.

775. *B. inaurata inaurata* (Sulz.).

1 ♂, 9 ♀♀ San Ramon, Rio Wanks, Nicaragua, 375 ft., June 1905 (M. G. Palmer); 3 ♀♀; 1 ♂, 2 ♀♀ San Pedro Sula, Honduras (fide Fruhstorfer); 2 ♂♂, 2 ♀♀ Central America (Felder coll.).

775A. *B. inaurata rezia* Druce.

1 ♂, 1 ♀ Bogotá; 1 ♀ Cundinamarca, Colombia; 2 ♂♂ Rio Dagua, Colombia (W. Rosenberg); 1 ♀ Amazons (Bates) (Felder coll.).

776. *B. ochriplaga* Hamps.

8 ♂♂, 17 ♀♀ La Union, Caura; 2 ♂♂, 3 ♀♀ (Felder coll., 1 ♂, 1 ♀ marked Amazon River); 1 ♀ Tinguri; 7 ♂♂, 26 ♀♀ Teffé, Amazons, November 1907 (M. de Mathan); Juhuty, Amazons, April 1905 (M. de Mathan); 1 ♂, 5 ♀♀, Humayta; 1 ♂, 6 ♀♀ Allianca; 1 ♂, 2 ♀♀ La Union, Carabaya; 1 ♀ Fonte Boa; 2 ♀♀ Guyapa, Caura; 2 ♀♀ Maripa.

777. *B. mygdon marthae* Rothsch.

1 ♂, 10 ♀♀ Ouaca, Sta. Marta.

778. *B. aplaga* Hamps.

7 ♂♂, 13 ♀♀ Paramba, 3500 ft., June 1897, dry season (Rosenberg).

779. *Diospage splendens* (Druce).

2 ♂♂, 1 ♀ Province Sara; 1 ♂ Pozuzu.

780. *D. chrysobasis* Hamps.

1 ♂ Bogotá.

781. *D. semimarginata* Rothsch.

2 ♂♂ Paramba (Rosenberg).

782. *D. steinbachi* Rothsch.

4 ♂♂, 1 ♀ Province Sara.

783. *D. cleasa* (Druce).

3 ♂♂ Bogotá.

784. *D. violitincta* Rothsch.

1 ♂ Corinto, Cauca, May—July 1906 (Paine and Brinkley).

785. *D. engelkei* Rothsch.

1 ♂ Onaca, Sta. Marta.

786. *D. rhebus* (Uram).

1 ♂ Amazons (Bates) (Felder coll.); 3 ♀ ♀ La Vuelta; 1 ♀ Tefié (Mathan); 1 ♀ Fonte Boa; 2 ♂ ♂, 3 ♀ ♀ Allianca; 1 ♂, 1 ♀ La Union, Carabaya; 2 ♂ ♂, 8 ♀ ♀ Maripa.

787. *Hypocrisias punctata* (Druce).

1 ♂ Huatuxco, Vera Cruz.

788. *H. minima* Neum.

2 ♂ ♂, 2 ♀ ♀ Jalapa; 2 ♂ ♂, 1 ♀ Nogales, Arizona, July 1903 (Oslar); 1 ♂, 5 ♀ ♀ Cuernavaca; 1 ♂ Mexico (? new species, dark brown).

789. *H. jonesi* (Schaus).

3 ♂ ♂, 2 ♀ ♀ Castro, Parana.

790. *H. fuscipennis* (Burm.).

2 ♂ ♂ Brazil; 1 ♂, 1 ♀ Rio de Janeiro.

791. *Nisaea longipennis* (Walk.).

1 ♂ Nanchuen, S. Szechuen, July—September; 1 ♀ Central China; 1 ♂, 2 ♀ ♀ Moupin, August 1890 (Kricheldorf); 1 ♀ Japan; 4 ♂ ♂, 2 ♀ ♀ Chang-Yang (Pratt); 1 ♀ W. China; 1 ♂ Omeishan (native coll.); 4 ♀ ♀ Khasia Hills, May 1895 (native coll.); 1 ♀ Assam; 1 ♂, 1 ♀ ?; 1 ♀ Wa-ssu-kow, 5000 ft., July 1890 (native coll.); 1 ♀ Ichang Gorge, September 1887 (Pratt); 3 ♂ ♂, 1 ♀ ? (Felder coll.).

792. *Preparectia mirifica* (Oberth.).

1 ♂ Ta-tsien-lu, 1904 (Chasseurs du Père Dejean); 1 ♀ Ta-Ho, Thibet, 1895 (native coll.). (Both ex coll. Oberthür.)

793. *Leptarctia californiae* (Walk.).

17 ♂ ♂, 2 ♀ ♀ Chimney Gulch, Golden Col., April 1901 (Oslar); 2 ♂ ♂, 3 ♀ ♀ Colorado Springs, Col., May 1901 (Oslar, 2 ♀ ♀ normal, 1 ♀ black hindwing, orange patch near tornus, 2 ♂ ♂ black hindwings; 3 ♂ ♂ Colorado (Mason).

794. *Hyphoraia lapponica* (Thunb.).

1 ♀ ? without abdomen (Felder coll.).

795. *H. testudinaria* (Fourer.).

2 ♂♂? (Felder coll.); 2 ♂♂, 1 ♀ Meran (1 ♂ almost black hindwings); 2 ♂♂, 4 ♀♀?; 3 ♂♂, 5 ♀♀ Tyrol (Groum-Grschmailo coll.); 1 ♂, 1 ♀ Piemont (Bartel coll.).

795A. *H. testudinaria* × *H. aulica*.

3 ♂♂, 2 ♀♀ emerged December 1906, result of pairing a ♂ *H. aulica* from Silesia with a ♀ *H. testudinaria* from South Tyrol.

796. *H. aulica* (Linn.).

10 ♂♂, 8 ♀♀ Austria (Felder coll.); 1 ♂ Siberia (Felder coll.); 5 ♂♂, 3 ♀♀?; 3 ♂♂, 5 ♀♀ Crimmitschau, May 1896 (Th. Wagner); 1 ♂ Liebenau, Bohemia, June 10, 1907; 1 ♂ Marmarosszuget, Transylvania, July 1901 (Farkas Sandor); 2 ♂♂, 3 ♀♀ Bavaria; 1 ♂, 1 ♀ Zara (Groum-Grschmailo coll.); 1 ♀ Tyrol, and 1 ♀ Silesia (very dark hindwings); 1 ♂, 1 ♀ Bohemia (uniform brown forewings and black hindwings).

797. *H. dejeani* (Godt.).

1 ♂ San Ildefonso, Segovia, Spain, June—August 1906 (M. de la Escalera); 1 ♂, 2 ♀♀ Castile, Spain (Groum-Grschmailo coll.); 1 ♂, 1 ♀?.

798. *H. parthenos* (Harr.).

1 ♀ Labrador (Felder coll.); 1 ♂ Texas; 1 ♀ Massachusetts (Meyer coll.).

799. *Ocnogyna latreilli* (Godt.).

2 ♂♂, 2 ♀♀?: 2 ♂♂ Castile; 1 ♀ Alpes Maritimes (Groum-Grschmailo coll.); 1 ♂ Cintra, Portugal, May 12, 1909 (N. Charles Rothschild) (hindwings yellow).

800. *O. pretiosa albovittata* subsp. nov.

♂. Differs from *O. pr. pretiosa* in having the pale markings of the forewings pure white, **not** pale clay-colour.

Hab. Kuku Nor, Thibet.

1 ♂.

801. *O. banghaasi* Staud.

4 ♂♂ Akbés, Asia Minor, May 17, 1902; 3 ♂♂ Mersina, Asia Minor, 1895 (Holz); 4 ♂♂ Akbés, Syria, 1895 (Groum-Grschmailo coll.).

802. *O. pardalina* (Püngl.).

4 ♂♂ Ili District, July.

803. *O. corsicum corsicum* (Ramb.).

3 ♂♂, 1 ♀?; 3 ♂♂ Corsica (Felder coll.); 2 ♂♂, 1 ♀ Corsica (Groum-Grschmailo coll.).

803A. *O. corsicum sardoa* Staud.

2 ♂♂, 3 ♀♀ Sardinia (2 ♂♂, 2 ♀♀ Groum-Grschmailo coll.; 1 ♀ Felder coll.).

804. *O. pierreti* (Ramb.).

All the insects named *pierreti* Ramb., *mauretanica* Lucas, *atlanticum* Lucas, *gandolphei* Oberth., and *huegenini* Oberth., are aberrations of the same insect, which must stand as *pierreti* (Ramb.). We have found the larvae in numbers near Mustapha Supérieur, Algiers town, but failed to rear them.

3 ♂♂, 1 ♀ Mauretania (Groum-Grschmailo coll.); 4 ♂♂?; 3 ♂♂, 1 ♀ Algiers.

805. *O. boetica* (Ramb.).

4 ♂♂?; 1 ♂, 1 ♀ Andalusia; 1 ♂, 1 ♀ Mauretania (Groum-Grschmailo coll.); 1 ♂, 1 ♀, Sebdom, Oran, 1880-82, Dr. Codet (Groum-Grschmailo coll.) (ex coll. Oberthür).

806. *O. loewii* (Zell.).

2 ♂♂ Syria; 2 ♂♂ Haifa, Syria (F. Lange); 2 ♂♂, 1 ♂ Palestine (Groum-Grschmailo coll.); 4 ♂♂ Ganden Askhabad, Kopet Dag; 6 ♂♂ Akbés, Asia Minor; 2 ♂♂ Armenia (Groum-Grschmailo coll.); 1 ♂ Kulp, Russian Armenia, 1901 (Max Korb); 2 ♂♂?; 1 ♂ Palestine.

807. *O. pudens* (Lucas).

1 ♂ Mauretania (Groum-Grschmailo coll.); 3 ♂♂?; 1 ♂ Algiers; 5 ♂♂ Les Glacières de Blida, June 1908 (W. Rothschild and K. Jordan); 1 ♂ Hammam R'irha, May 31, 1908 (W. Rothschild and K. Jordan); 4 ♂♂ Les Glacières de Blida (Dr. Nissen).

808. *O. parasita* Hübn.

1 ♂, 1 ♀? (Felder coll.); 2 ♂♂, 1 ♀?; 1 ♂, 1 ♂ Hungary (Groum-Grschmailo coll.).

809. *O. nogelli* (Led.).

1 ♂?.

810. *Phragmatobia zoraida zoraida* (Grasl.).

3 ♂♂, 5 ♀♀? 1 ♂, 1 ♀ Andalusia (Groum-Grschmailo coll.); 1 ♂ Cuenca, Castile; 1 ♂ Albarracín.

810A. *Ph. zoraida hemigena* (Grasl.).

2 ♂♂, 2 ♀♀ (Groum-Grschmailo coll., 1 ♂ marked "Pyr. orient."); 2 ♂♂, 1 ♀?; 2 ♂♂, 1 ♀?; 1 ♂, 1 ♀? (Felder coll.).

810B. *Ph. z. zoraida* × *Ph. z. hemigena*.

This artificially produced hybrid(!) has been called *zoragena*.

2 ♂♂, 2 ♀♀ (Groum-Grschmailo coll.); 1 ♂, 1 ♀?; 1 ♂, 1 ♀ Spain?; 1 ♂, 1 ♀ eggs laid Leipzig 1883 (fide Heyne), emerged Berlin, February 15, 1884.

811. *Ph. maculosa maculosa* (Gern.).

3 ♂♂, 5 ♀♀ ? (Felder coll.); 1 ♀ Helvetia, 2 ♂♂ Maiuz, 1 ♂ ? (Groum-Grschmailo coll.); 3 ♂♂, 4 ♀♀ ? (1 ♂, 1 ♀ Meyer coll.); 1 ♂ Luchon, July 16, 1906; 2 ♂♂ Canterets, July 29 and August 2, 1905 (W. Rothschild and E. Hartert); 1 ♂ Gèdre, Hautes Pyrénées, July 1908 (Rondon); 6 ♂♂ La Grave, 1500—1800 m., and 37 ♂♂ Le Lantaret, 2000—2300 m., Hautes Alpes, July 1908 (W. Rothschild and K. Jordan); 9 ♂♂ Digne, Basses Alpes, June 1908 (2 Cotte, 7 W. Rothschild and K. Jordan); 1 ♂ Beauvezer, Basses Alpes (H. Powell); 19 ♂♂ Pescocostanza, Italy, July 1906 (O. Neumann).

811A. *Ph. maculosa simplonica* (Boisd.).

2 ♂♂, 1 ♀ Silvaplana (Osirnig); 1 ♂ Helvetia, 2 ♂♂, 2 ♀♀ Albula Pass, Engadine (Groum-Grschmailo coll.); 2 ♂♂, 2 ♀♀ ?; 2 ♂♂ ? (Felder coll.); 2 ♀♀ Engadine (W. Rothschild); 2 ♀♀ Schafberg, Pontresina, Engadine, July 21, 1904 (M. Bartel); 1 ♂, 1 ♀ ? (Meyer coll.).

811B. *Ph. maculosa mannerheimi* (Dup.).

1 ♂ Ural (Felder coll.); 3 ♂♂ Guberli ?, 1 ♂ Saratow, 1 ♀ Orenburg (Groum-Grschmailo coll.); 1 ♂ Orenburg (M. Bartel); 1 ♂, 1 ♀ S. Ural; 32 ♂♂ Uralsk, June, July 1906 (M. Bartel coll.).

811C. *Ph. maculosa coecilia* (Led.).

1 ♂, 1 ♀ ?.

811D. *Ph. maculosa reticulata* (Christ.).

2 ♂♂ Achal-Tekke: 1 ♂ Askhabad, 1 ♂, 1 ♀ Aidara (Eyland) (Groum-Grschmailo coll.).

811E. *Ph. maculosa dahurica* (Boisd.).

3 ♂♂ Issyk-Kul (Taneré) (Groum-Grschmailo coll.).

812. *Ph. rupicola* (Gr.-Grschm.).

1 ♀ Issyk-Kul, 1896 (Taneré).

(To be continued.)

DIE GROSSEN KÄNGURUHS UND IHRE GEOGRAPHISCHEN FORMEN.

VON ERNST SCHWARZ.

(Plates I.—IV.)

BIS vor zehn Jahren war der Norden und Westen Australiens in zoologischer Beziehung recht wenig bekannt. Seit Gould's Zeiten ist dort kaum gesammelt worden. In der letzten Jahren aber ist eine ganze Reihe von Expeditionen dort tätig gewesen, die uns mit einer Anzahl neuer Formen bekannt gemacht haben. Eigentlich haben wir jetzt von diesen bis dahin vernachlässigten, Gebieten weit reicheres Material als aus dem Osten, dem Süden und dem Innern des Kontinents. Die Kenntnis der grossen Känguruhs hat durch die Sammlungen, die jetzt vorliegen, eine grosse Erweiterung erfahren. *Macropus antilopinus* war nur in einem Paar bekannt, von dem Vorkommen von Känguruhs der *M. rufus*- und *robustus*-Gruppe im Westen wusste man überhaupt nichts. Es zeigt sich jetzt, dass *M. robustus* mit seinen verschiedenen Lokalformen über fast ganz Australien verbreitet ist; lediglich im Südwesten fehlt es, während *M. rufus* den ganzen Kontinent, mit alleiniger Ausnahme Nordqueenslands und Arnhemlands, sowie des äussersten Nordwestens, bewohnt. *Macropus giganteus* ist im Wesentlichen auf die Küstengebiete beschränkt und dringt nur im Südosten ins Innere ein. *Macr. antilopinus* und *M. hagenbecki* endlich haben nur ein beschränktes Verbreitungsgebiet im äussersten Norden. Zwei Formen nur leben auf Inseln: *M. gig. fuliginosus* auf Tasmanien und *M. rob. isabellinus* auf Barrow Island im Nordwesten. Letzteres hat sich dort zu einer von dem allgemeinen *robustus*-Typ. recht abweichenden Form entwickelt.

Das Material zu der vorliegenden Arbeit stammt zum grössten Teil aus der Sammlung des British Museum, das ich mit der freundlichen Erlaubnis des Herrn O. Thomas benutzen durfte. Baron W. von Rothschild gestattete mir gütigst auch die Benutzung seines Museums in Tring und Herr R. H. Burne die der Schädel-sammlung des Royal College of Surgeons. Für frdl. Ankünfte bin ich Herrn Prof. Matschie, Dr. Nieden und Dr. Heinroth, alle in Berlin verbunden. Allen diesen Herren für ihre Unterstützung besten Dank.

In der Nomenklatur der Zähne bin ich dem "Catalogue of Marsupials" gefolgt. Der "Secator" ist der "p₁" desselben. Dagegen nenne ich das, was Thomas "old" nennt "erwachsen" (ad.), und was er "adult" nennt, "nicht ganz erwachsen" (subad.).

Von Literatur gebe ich nur die wichtigere, nach dem "Catalogue of Marsupials" erschienene.

Die verschiedenen Arten sind folgendermassen zu unterscheiden:

Nach Schädelcharakteren:

a₁ Interorbitalregion stark konvex.

b₁ l₃ sehr lang, mit 2 Kerben, vordere Querleiste der Molaren mit Längsbrücke; Joehbogen breit. Proc. coronoidens des Unterkiefers gedrungen *M. giganteus*.

b_2 I_3 kurz, glatt; vordere Querleiste der Molaren ohne Längsbrücke. Jochbogen schmal. Proc. coronoidens sehr schmal und spitz.

M. rufus.

a_2 Interorbitalregion nicht konvex; oberer Rand der Augenhöhle scharfkantig.

c_1 Nasenhöhle sehr stark erweitert; Gaumen vorn sehr breit. Vordere Querleiste der Molaren mit deutlicher Längsbrücke. *M. antilopinus.*

c_2 Nasenhöhle nur wenig gewölbt, oder wenn erweitert, Gaumen vorn schmal. Vordere Querleiste der hinteren Molaren ohne oder mit ganz unentlicher Längsbrücke.

d_1 Facialindex beim erwachsenen ♂ unter 280 . . *M. robustus.*

d_2 Facialindex beim erwachsenen ♂ über 280 . . *M. hagenbecki.*

Nach äusseren Charakteren:

a_1 Ohren lang. Gestalt schlank; mit langen Hinterbeinen.

b_1 Rhinarium behaart; Mittelkralle des Hinterfusses sehr lang.

M. giganteus.

b_2 Rhinarium nackt; Mittelkralle des Hinterfusses kurz . *M. rufus.*

a_2 Ohren kurz. Gestalt gedrungen; mit kürzeren Hinterbeinen.

c_1 Rhinarium mit mittlerer Ausbuchtung . . . *M. antilopinus.*

c_2 Rhinarium ohne solche.

d_1 Behaarung wollig. Oberlippe weiss. . . *M. hagenbecki.*

d_2 Behaarung nicht wollig. Oberlippe nicht weiss . *M. robustus.*

Macropus rufus.

Ein sehr grosses Känguruh von schlankem Bau, mit langen Hinterbeinen. ♀ immer viel kleiner als ♂.

Behaarung kurz, sehr zart und wollig (nur Unterwolle, keine Grannen). Auf dem vorderen Teil des Rückens ein Wirbel; die Haare des Vorderrückens mehr oder weniger nach vorn gerichtet. Die Gesichtshaare strahlen von zwei Linien an den Seiten nach der Mitte zu und bilden in der Mittellinie, wo sie sich treffen, eine Art Kamm, der sich über Stirn und Nasenrücken erstreckt. Ohren innen lang, aussen ganz kurz behaart. Schwanz kurzhaarig. Ohren lang. Rhinarium breit, nackt; in der Form etwa in der Mitte stehend zwischen *M. giganteus* und *robustus*. Mittlere Kralle des Hinterfusses kurz; Krallen der Finger kurz, flach, stumpf.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel sehr lang, am längsten von allen Känguruhs. Die Nasenhöhle ist seitlich etwas gewölbt; die Schnauze verjüngt sich nach vorn. Die Nasalia sind lang und schmal, in der Regel mit fast parallelen seitlichen Rändern, die sich hinten etwas von einander entfernen. Die Interorbitalregion ist stark konvex, und der obere Rand der Augenhöhle ist abgerundet, daher unentlich begrenzt. Ein Proc. postorbitalis fehlt, und die mediale Wand der Augenhöhle ist glatt. Der Jochbogen ist schmal (der obere Rand des Proc. zygomaticus des Schläfenbeins ist nur wenig konvex). Der Proc. infrazygomaticus ist lang und schmal. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Der Proc. paroccipitalis ist lang und breit. Die Pars horizontalis des Gaumenbeins ist sehr unvollständig; die Foramina palatina sind oft gross und reichen dann bis weit in die Maxilla hinein. Der Gaumen ist lang und schmal; seine geringste Breite geht etwa $2\frac{1}{2}$ mal in die Länge des Diastemas. Die Foramina incisiva sind sehr lang und werden in der Regel hinten von der Maxilla gebildet. Die Praemaxilla ist hinten in eine lange Spitze

ausgezogen, die bis zur Mitte der Nasalia reicht. Die Profillinie des Schädels steigt von hinten schwach konkav an bis zum hinteren Ansatz des Jochbogens, von da schwächer (in fast gerader Linie) bis zu ihrem höchsten Punkt über dem Vorderende des Proc. zygomaticus des Schläfenbeins, und läuft von da in fast gerader Linie (abgesehen von dem Knick am Hinterende der Nasalia) nach vorn.

Unterkiefer: Der Corpus ist sehr lang und schmal und bildet mit dem schlanken, niedrigen Ramus einen stumpfen Winkel. Der Condylus ist schwach konkav. *Processus coronoideus* kurz, schmal, oben wenig nach hinten umgebogen und mit scharfer Spitze.

Zähne:

Oberkiefer: Schneidezähne lang (in verticaler Richtung) und mit mehr senkrechter Wurzel als *M. giganteus*; in der horizontalen Länge alle drei recht variabel, I_3 jedoch im Vergleich zu den verwandten Arten kurz. Nur letzterer hat bisweilen (besonders bei jungen Tieren) eine undeutliche Vertikalrille. P_3 länglich, hinten breiter als vorn; Secator ähnlich, aber schmaler. Molaren gewöhnlich mit wohl entwickelter vorderen Querleiste, die aber grosse Neigung zeigt sich abzuschieben (*Macr. magnus*!) und keine Längsbrücke trägt. Dagegen findet sich häufig ein hinterer mittlerer Fortsatz der mittleren Querleisten. Längsbrücke zwischen der mittleren und hinteren Querleiste wohl entwickelt.

Unterkiefer: I_1 seitlich komprimiert, mit scharfer Schneide und unteren Kante und stumpfer medialen Kante. Eine horizontale Rille parallel mit der unteren Kante. Secator ähnlich wie im Oberkiefer, aber viel schmaler und kleiner. Molaren an der Krone breiter als an der Wurzel, mit gut definierten Längs- und Querleisten.

Hierher gehört auch das berühmte "Owen's Kängurnh" (*Macr. [Boriogale] magnus* Ow.), das so lange in der Literatur herumspukte und sich jetzt bei sorgfältigem Vergleich mit einer grossen Reihe von *rufus*-Schädeln (Die Lokalformen von *M. rufus* sind am Schädel nicht zu erkennen. Sie variieren individuell bis zu einem gewissen Grade, subspezifische Charaktere, sind aber nicht entwickelt) als identisch mit *M. rufus* und zwar der typischen ostaustralischen Form, erweist. Der "Typus" ist ein ganz verkrüppelter Schädel. Schnauze und Nasalia sind gänzlich verbogen, die Molaren sitzen infolge dessen zu dicht zusammen und daher ist die Vorderleiste zum Teil abgerieben; ebenso ist der eine obere Secator an den hinter ihm stehenden Zahn gepresst und ebenso abgerieben oder unvollständig entwickelt; der andere Secator ist etwas von dem hinter ihm stehenden Zahn entfernt und ganz normal. Was die Grösse der beiden Foramina palatina und incisiva betrifft, so sind das rein individuelle Eigenschaften, die sich bei mehreren, der mir vorliegenden Schädel, teilweise ebenso, wenn nicht noch ausgeprägter, finden. Das Brit. Mus. besitzt übrigens einen zweiten *rufus*-Schädel, der ebensolche Molaren zeigt (von Dubbo, Neu-Süd-Wales) und Spencer (*Report of the Horn Exped. Mamm.* p. 12 [1896]) erwähnt zwei gleiche von Central-Australien.

Macropus rufus ist das Kängurnh des Inneren Australiens; es fehlt nur im äussersten Norden und anscheinend auch im äussersten Nordwesten. Eine Lokalform findet sich in Ostaustralien (*rufus*), eine zweite in den Tropen des Nordwestens (*pallidus*) und eine dritte im Südwesten (*occidentalis*). ♀ und ♂ können gleich gefärbt sein und zwar blan gran oder rot. Beide Phasen kommen bei allen drei Lokalformen vor. *M. rufus dissimulatus*, das nach einem granen ♂ beschrieben wurde, ist offenbar (wie ich mich selbst überzeugen konnte) identisch

mit der typischen ostaustralischen Form, wogegen Cahn's *M. r. occidentalis*, der den Hauptwert auf die roten ♀ legt, eine besondere Subspecies darstellt. Ein ♀, das im Berliner Zoologischen Garten lebt, wird im Winter immer grau, während Rothschild's "*M. rufus dissimulatus*" nach einiger Zeit mehr oder weniger rot wurde.

Die drei Formen lassen sich folgendermassen unterscheiden :

- a_1 Oberseite hellblangran oder stumpf rot *M. r. rufus*.
 a_2 Oberseite ganz hell rot, höchstens mit bläulichem Schimmer. Behaarung
 sehr kurz *M. r. pallidus*.
 a_3 Oberseite sehr reich rot oder dunkelblangran. Behaarung länger und
 viel zärter als bei a_1 und a_2 *M. r. occidentalis*.

Macropus rufus rufus (Desm.).

Macropus rufus Thos., Cat. Mars. Mon. Brit. Mus. p. 25 (1888).

Macropus (Boriogale) magnus Owen, Phil. Trans. 1874, p. 247 ; Thos. l.c., p. 27 (1888).

Macropus rufus dissimulatus Rothschild, Nov. Zool. xii. p. 508 (1905).

Macropus rufus dissimulatus Lyd., Zool. Record xlii. p. 47 (1905).

Behaarung kurz, in der Mitte stehend zwischen *M. r. pallidus* und *occidentalis*. Gesichtszeichnung deutlich.

Zwei Phasen, eine hell blaugraue und eine rote.

Oberseite mattrot, matter als bei *M. r. occidentalis*, lebhafter als bei *pallidus*, oder hell blangran. Unterseite weiss mit schwach rötlichem Schimmer. Gesichtszeichnung aus einem weissen Strich, vom Mundwinkel in der Richtung zum Auge laufend und oberseits von einem schwarzen Fleck begrenzt, bestehend. Oberlippe weiss. Wangen mattgran; Nasenrücken rötlich. Ohren aussen gran, innen weiss. Arme und Beine hell bräunlich, dunkler nach den Pfoten, resp. Zehen werdend; diese selbst braunschwarz. Schwanz weisslich mit etwas rotem Schimmer; an der Basis wie der Rücken.

♀ Kleiner als ♂; sonst ebenso.

Hab. Ost- und Zentralaustralien.

Von dieser Form liegen mir 5 Exemplare von Alexandria, Northern Territory, vor, darunter zwei erwachsene ♂, von denen eins die rote, das andre die blaugraue Phase repräsentiert. Letzteres unterscheidet sich durch nichts von dem Typus von *M. rufus dissimulatus*. Die rote Phase steht in der Farbe etwa in der Mitte zwischen den beiden westaustralischen Formen.

Macropus rufus pallidus subsp. nov.

Macropus rufus Thos., Nov. Zool. xi. p. 365 (1904).

Behaarung sehr kurz; Gesichtszeichnung undeutlich. Kleiner als die ostaustralische und südwestaustralische Form. Haare auf der Hinterseite der Ohren länger als bei der typischen Form, etwas borstig. Farbe sehr hell.

♂. Oberseite hell rötlich isabell; Unterseite mattrotlichweiss. Kopf etwas heller als Rücken. Gesichtszeichnung sehr undeutlich; Wangen mattgran. Ohren hinten; an der Basis rein weiss, nach der Spitze zu rötlich, innen spärlich weiss behaart. Arme hell bräunlich, Pfoten braun; Oberschenkel weisslich, Unter-

schenkel etwas rötlich, Zehen braunschwarz. Schwanz etwas matter als der Rücken, einfarbig bis zur Spitze.

♀ kleiner, noch heller als das ♂, besonders an den Seiten und im Nacken. Bisweilen mit ganz schwachem bläulichgrauem Schimmer.

Dieses Känguruh ist leicht durch seine auffallend blasse Farbe und die kurze Behaarung zu erkennen. Die Gesichtszeichnung ist sehr undeutlich, und die Farbe der Gliedmassen ist nicht so scharf von der allgemeinen Körperfarbe abgesetzt, wie das besonders bei *M. r. occidentalis* ausgeprägt ist.

Hab. N.W. Australien; "Nördlicher Distrikt," Westaustralien.

Typus: B. M. 4. 1. 2. 3. ♂ ad., I. T. Tunney coll., Shaw River, am 29. 8. 01.

Maasse des Typus: Rumpflänge 1325 mm; Schwanz 875; Hinterfuss 375; Ohr 175. (Im Fleisch gemessen.)

Macropus rufus occidentalis Cahn.

Cahn, *Zool. Beob.* xlvii. p. 381 (1906) und xlviii. p. 3 (1907).

Macropus rufus Thos., *P.Z.S.* 1906. p. 474 und 768.

Macropus magnus Rothsch., *Nor. Zool.* xiv. p. 14 (1907).

Behaarung sehr dicht, zart und wollig, länger und dichter als bei der östlichen Form. Ohren sehr lang. Rhinarium nackt, *dreilappig*. Ein Haarwirbel im Nacken.

Oberseite tief rot, viel reicher als bei den andern Formen; Kopf etwas matter, Wangen bisweilen grau. Die Gesichtszeichnung besteht wie bei *rufus* aus zwei weissen Streifen die einen schwarzen einschliessen; der untere weisse Streifen setzt sich, wenn auch wesentlich matter, in der Richtung nach dem Auge zu fort. Ohrhinterseite an der Basis gewöhnlich weisslich, nach der Spitze zu mit kurzen gelblichen und dunkelgrauen Härchen spärlich besetzt, Innenseite mit langen rein weissen Haaren. Mitte des Kinns rein weiss, scharf abgesetzt von den dunkeln Wangen. Das Weiss setzt sich oft jederseits in ein scharf definiertes Band nach dem Ohr zu fort. Unterseite sonst nur wenig matter als die Oberseite; Hinterbauch und ein Streifen über die Brust (von Arm zu Arm) mehr oder weniger weiss. Unterarme gelblich, scharf von den roten Oberarmen abgesetzt; Pfoten schwarz. Beine hell rötlichgelb; Zehen schwarz. Schwanz gelbrötlich mit einem schiefergrauen Placken in der basalen Hälfte.

Hab. West-Australien südlich vom Murchison River. Der Typus stammt aus dem Murchison Distrikt. Im British Museum befindet sich eine ganze Serie aus dem Gebiete, südlich des Swan River (Balston Collection, vrgl. Thomas l.c.).

Die Originalbeschreibung legt besonderes Gewicht auf die weisse Ohrbasis und die Tatsache, dass die Weibchen rot sind. Beides sind recht variable Charaktere. Es kommen graue ♀ und gelegentlich auch graue ♂ vor. Wirklich charakteristisch ist die dichte zarte Behaarung und die reiche, rote Farbe.

Macropus giganteus.

Ein grosses Känguruh von schlankem Bau, mit sehr langen Hinterbeinen. Mittlere Krallen des Hinterfusses sehr lang, Krallen der Finger ziemlich lang, flach, vorn abgerundet.

In der Mitte des Rückens ein Haarwirbel (die Haare des Nackens und Vorderrückens mehr oder weniger nach vorn gerichtet). Die Stirnhaare nach

vorn, die des Nasenrückens nach hinten gerichtet (ähnlich bei *robustus*). Behaarung der Körperseiten länger als die der Rückenmitte. Schwanz mässig lang behaart, nach der Spitze zu dunkler werdend. Behaarung des Gesichts kurz und anliegend, nicht borstig. Rhinarium ganz behaart.

♀ kleiner als ♂, sonst ganz gleich.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel lang. Die Nasenhöhle ist seitlich erweitert; die Schnauze verjüngt sich nach vorn. Die Nasalia sind lang und schmal, in der Mitte etwas eingeschnürt und breit am hinteren Ende. Die Interorbitalregion ist stark konvex; der obere Rand der Augenhöhle ist rund; ein Proc. postorbitalis fehlt; dagegen findet sich an seiner Stelle an der medialen Wand der Augenhöhle ein senkrechter Wulst, der ähnlich, wenn auch weit schwächer, sich bei *M. antilopinus* findet, und sich als Protuberantia postorbitalis bezeichnen lässt. Der Jochbogen ähnelt dem der Känguruhs der *robustus*-Gruppe; er ist jedoch schmaler und seine obere Begrenzung ist weniger konvex. Der Proc. infrazygomaticus ist lang und schmal. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die *Pars horizontalis* des Gaumenbeins hat ziemlich viele Löcher und steht in dieser Beziehung in der Mitte zwischen *M. robustus* und *rufus*. Die eigentlichen Foramina palatina liegen ganz in der Pars horizontalis; ausserdem finden sich gewöhnlich vor ihnen, in der Maxilla, zwei mehr oder weniger grosse Löcher. Der vordere Gaumen ist sehr lang und schmal, seine geringste Breite geht etwa $3\frac{1}{2}$ mal in die Länge des Diastemas; seine seitlichen Ränder sind, obwohl abgerundet, wohldefiniert. Die Praemaxilla reicht hinten nur etwa bis zu einem Drittel der Nasalia. Der Proc. paroccipitalis ist schmal und sehr lang. Die Profilinie ist ähnlich der von *M. rufus*, steigt hinten jedoch steiler an und ist im vorderen Teil gerader.

Unterkiefer: Corpus lang und gedrungen. Ramus ziemlich breit; er bildet mit dem Corpus einen etwas stumpfen Winkel. Der Condylus ist konkav. Der Proc. coronoides ist gedrungen, oben scharf umgebogen und zugespitzt.

Zähne:

Oberkiefer: Schneidezähne kurz in vertikaler, lang in horizontaler Richtung, mit schräg eingesetzter Wurzel; hoch hinauf mit Schmelz überzogen. Wurzeln der beiden I_1 weit von einander entfernt. I_1 mit einer Vertikalrille in der Mitte; F_2 mit zentraler Kerbe; I_3 mehr als doppelt so lang (horizontal) als der recht lange I_2 , mit zwei Kerben in der vorderen und ein bis zwei Vertikalrillen in der hinteren Hälfte P_3 mindestens so lang wie der Secator, sehr breit, sanduhrförmig. Secator sehr klein, hinten breiter als vorn; er fällt gewöhnlich sehr früh aus. Molaren mit breiten vorderen Querleisten (mit Längsbrücke) und hohen Längsbrücken.

Unterkiefer: I_1 lang und seitlich stark komprimiert ohne mediale Kante. Secator noch kleiner als im Oberkiefer. Molaren mit hohen Längs- und Querleisten.

♀ kleiner und schmaler.

Das Riesenkänguruh findet sich in den Küstendistrikten ganz Australien ausser dem äussersten Norden und dem Westen nördlich des Murchison Distrikts. Es kommt in N. Queensland vor, wo *M. rufus* fehlt. Im Osten ist es jetzt in das Innere gedrängt und schon stark dezimiert. Es lassen sich vier wohldefinierte Lokalformen nach äusseren Charakteren (nicht nach dem Schädel) unterscheiden, von denen eine (*fuliginosus*) Tasmanien bewohnt, während mir die Verbreitung von *M. g. melanops* noch recht unklar ist.

- A. Ohren an der Basis heller als an der Spitze; Behaarung nicht wollig.
- a. Behaarung zart, kurz; Schwanzunterseite kaum heller als die Oberseite *Macr. giganteus giganteus*.
 - b. Behaarung rauh, lang; Schwanzunterseite viel heller und scharf abgesetzt von der Oberseite *M. g. fuliginosus*.
- B. Ohren an der Basis dunkler als an der Spitze, Behaarung wollig.
- c. Behaarung kurz; Haare der Gliedmassen borstig; Hände nicht dunkler als Arme; Ohren aussen sehr hell, innen lang reinweiss behaart *M. g. ocydromus*.
 - d. Behaarung lang und sehr dunkel; Ohren hinten nur hell gesprenkelt; Haare der Gliedmassen nicht borstig; Hände dunkler als Arme *M. g. melanops*.

Macropus giganteus giganteus (Zimm.).

Macr. giganteus typicus Thos., *Cat. Mars. Mon. Brit. Mus.* p. 16 (1888).

Behaarung kurz, sehr zart und fein, aber nicht wollig. Ohren sehr lang (länger als bei *ocydromus*). Behaarung der Ohren aussen nicht borstig und innen bei Weitem nicht so dicht wie bei *ocydromus*. Behaarung der Unterseite sehr kurz und spärlich.

Oberseite gelblich braungrau, am dunkelsten in der Mittellinie, nach den Seiten zu heller. Kopf gelblich grau. Ohrbasis wie der Kopf, Hinterseite zum grössten Teil einfarbig braun. Augen dunkel eingefasst; ein dunkler Mundwinkel-fleck. Wangen weisslich. Arme hell gelbgrau, Pfoten hell graubräunlich; Beine gelblich, Zehen hell graubräunlich. Schwanzhaare an der Basis gelb und braun geringelt und nur ein verhältnissmässig kleines Stück an der Schwanzspitze schwarz. Unterseite des Körpers bräunlich weiss, am dunkelsten am oberen Teil der Brust, am hellsten ganz hinten.

Hab. Ostaustralien, das Küstengebiet und die grossen Ebenen von Neu-Süd-Wales.

Macropus giganteus fuliginosus (Desm.).

Kangurus fuliginosus Desm., *N. Dict. d'H.N.* (2) xvii. p. 35 tab. xxii. fig. 1 (1817).

Macropus giganteus fuliginosus Thos. *Cat. Mars. Mon. Brit. Mus.* p. 19 (1888); Cahn, *Zool. Beob.* xlviii. p. 2 (1907).

Behaarung ziemlich lang, dicht und rauh. Ein Haarwirbel auf dem Rücken. Haare der Gliedmassen nicht borstig.

Oberseite rauchgrau; Körperseiten etwas heller; am Kinn ein undeutlicher dunkler Fleck. Unterseite und Innenseite der Gliedmassen gelblich weiss. Scheitel, Stirn, Nasenrücken und Schläfen etwas heller grau als der Rücken; Wangen mattbräunlich. Ohrbasis wie Scheitel, Ohrhinterseite dicht mit mässig langen dunkel graubraunen Haaren, Innenseite dicht weisslich behaart. Arme hell grau, dunkler nach den Pfoten zu, die äussersten Spitzen der Finger dunkel graubraun. Beine etwas heller als Arme, Zehen dunkel graubraun. Schwanzoberseite an der Basis ähnlich dem Rücken, jedoch graner und stark gesprenkelt, Spitze schwarz; Unterseite des Schwanzes scharf abgesetzt fahl gelblich bis zur Spitze.

Hab. Tasmanien.

Dieses Känguruh steht wohl *M. giganteus* am nächsten, von dem es sofort durch die dichtere, längere, rauhere Behaarung und mehr graue Körpertarbe zu unterscheiden ist.

Macropus giganteus melanops (Gould).

Macropus melanops Gould, *P.Z.S.* 1842. p. 10.

Macr. giganteus melanops Thos., *Cat. Mars. Mon. Brit. Mus.* p. 20 (1888).

Behaarung dicht, lang, wollig. Kein Haarwirbel im Nacken. Ohren kürzer als bei *M. giganteus*.

Oberseite dunkel bräunlich russfarben, die Haare bisweilen mit etwas hellerer Spitze. Am Kinn ein dunkler Fleck. Haare an Kehle, Brust und Unterarmen, sowie Innenseite der Oberarme an der Basis russfarbig mit weisslicher Spitze, sodass ein eigentümlich undentlich gesprenkelter Gesamteindruck entsteht. Scheitel und Ohrbasis etwas dunkler als Rücken; Ohrhinterseite dunkelrussfarben mehr oder weniger mit weiss gemischt; Innenseite ziemlich spärlich weisslich behaart. Stirn etwas heller als Scheitel; Nasenrücken schwärzlich russfarben; Wangen hellbraun, heller um die Augen. Der dunkle Nasenrücken scharf von der Farbe der Wangen abgesetzt. Oberarme wie Rücken; Hände schwärzlich. Beine gelblich hellgrau; Zehen schwärzlich. Schwanzbasis dunkel wie Rücken, Spitze schwarz. Körperseiten bräunlich; Unterseite matter.

Hab. Der Typus dieser Form soll von Port Essington gekommen sein, doch kommt dort *M. giganteus* überhaupt nicht vor; die Angabe beruht also sicher auf einem Irrtum. Merkwürdigerweise liegt mir nicht ein einziges Exemplar mit genauem Fundort vor. Doch finde ich bei Lucas und Le Souef* (p. 90) eine kurze Bemerkung: "It is found in the Mallee (dwarf Eucalypti) country of Southern Anstralia," und das scheint mir das Richtige zu treffen. Dass es mit *M. giganteus* dieselben Gegenden bewohne, halte ich für ausgeschlossen (vgl. Thomas, "Catalogue of Marsupials").

Auch ob es kleiner ist als *M. giganteus* wie Thomas annimmt, kann ich nicht sagen; alle mir vorliegenden Stücke sind nicht erwachsen.

M. g. melanops steht wohl dem westaustralischen *Macr. g. ocydromus* am nächsten. Es unterscheidet sich durch mehr braune Grundfarbe, den ausgesprochen dunklen Nasenrücken, die dunklen Hände und nicht borstigen Arme, vielleicht auch durch geringere Grösse. Die Ohrhinterseite obwohl auch mit weiss gemischt ist viel dunkler als bei *M. g. ocydromus*.

Macropus giganteus ocydromus (Gould).

Macr. ocydromus Gould, *Ann. Mag. Nat. Hist.* (1) x. p. 1 (1842).

Macr. giganteus Thos., *Cat. Mars. Mon. Brit. Mus.* p. 17 u. 18 (1888); id. *P.Z.S.* 1906 p. 474 und p. 767.

Macr. giganteus ocydromus Cahn, *Zool. Beob.* 1907 p. 2.

Behaarung kurz, dicht, sehr fein, zart und wollig. Ohren kürzer als bei der typischen Form. Haare der Ohrhinterseite und der Arme hart und borstig.

Oberseite einfarbig heller oder dunkler russfarbig. Am Kinn ein grosser dunkler Fleck. Kehle, Brust und Innenseite der Arme und Beine weiss. Scheitel wie Rücken, Ohrbasis und Nasenrücken dunkler. Hinterseite der Ohren weiss mit wenig dunkel gemischt; **Innenseite** mit sehr **langen weissen** Haaren dicht besetzt. Wangen hell bräunlich russfarben. Haare der Arme weisslich mit schmalen braunen Binden; Pfoten nicht dunkler als die Arme; an der Basis der Krallen ein Saum von langen schwarzen Borsten. Beine weisslich mit wenigen

* Lucas und Le Souef: *The Animals of Australia*, Melbourne, 1909.

brannen Haaren eingestreut; Zehen dunkelbraun. Schwanz dunkler als der Körper, seine Spitze schwarz; Schwanzseiten mit hell gemischt.

Hab. Süd-West-Australien; die Küstenregion; im Innern findet sich *Macr. rufus occidentalis*, dass auch weiter nördlich noch vorkommt und teilweise das gleiche Gebiet bewohnt wie *M. robustus cervinus*. Während aber das Rotkänguruh die Ebene bewohnt, lebt das letzere in hügeligem oder gebirgigem Terrain.

Macropus giganteus ocydromus ist ausgezeichnet vor allem durch die aussen hellen, gesprenkelten und innen lang, weiss behaarten Ohren und die hellen Gliedmassen, die in auffallendem Gegensatz zu dem dunklen Körper mit seiner weichen, zarten Behaarung stehen.

Macropus antilopinus (Gould).

Macr. antilopinus Thos., *Cat. Mars. Mon. Brit. Mus.* p. 21 (1888); id., *Nor. Zool.* xi. p. 224 (1904); Collett, *P.Z.S.* 1897 p. 323; Cahn, *Zool. Beob.* xlviii. p. 2 (1907).

Körperbau gedrungen; Hinterbeine verhältnissmässig kurz. *Rhinarium* gross, nackt, mit mittlerer Ausbuchtung (Unterschied gegen *M. robustus*), Behaarung kurz, spärlich, raub, fast ganz ohne Unterwolle. Gesicht verhältnissmässig langhaarig, etwas borstig erscheinend (besonders ♀). Ohren kurz, aussen und innen dicht mit mässig langen Haaren besetzt. Mittelkralle des Hinterfusses kurz und fast ganz unter den langen Haaren an ihrer Basis verborgen. Krallen der Finger sehr lang, gebogen, seitlich stark komprimiert, mit scharfer Spitze. ♀ viel kleiner als ♂, abweichend gefärbt, langhaariger und mit etwas anderem Schädel.

♂. Oberseite lebhaft hell rostrot, ähnlich *M. rob. woodwardi*, aber etwas dunkler, mehr bräunlich angehaucht. Die Basis der Haare ist weiss, so dass Nacken und besonders Körperseiten stark mit weiss gemischt erscheinen. Unterseite weiss, am Kinn ein gelblichgrauer Fleck. Scheitel ähnlich dem Rücken, etwas lebhafter gefärbt und ohne die weisse Beimischung. Ohren hinten von der Farbe des Scheitels, weisslich an der Spitze; innen weisslich. Wangen ganz hell rötlich; Nasenrücken schmutzig rötlichgelb; Mundwinkel gelblich. Gliedmassen gelblich weiss, aussen etwas mehr rötlich. Hände branngelb, Finger schwarzbraun; Zehen schwarzbraun; Schwanz gelblich, mit einer hellrötlichen Längsbinde oben.

♀. In der Farbe nach der Jahreszeit scheinbar wechselnd. Oberseite im "Sommer" (Mai—Oktober) mattgelbrötlich, grau im Nacken, im "Winter" aschgran. Haare der Unterseite in der Mittellinie mit graner, nach den Seiten zu mit mattrotlicher Basis und weisser Spitze. Scheitel immer dunkel braungrau, ebenso basale Hälfte der Ohren hinten; Spitze und Innenseite weiss. Stirn und Nasenrücken gran und weiss gesprenkelt; Wangen weiss. Arme hell gelblich gran, Finger hellbraun; Beine weiss, Zehen dunkel schwarzgran.

Schädel: Ein kurzer, breiter Schädel. Die Gesichtspartie ist im Vergleich zur Gehirnkapsel ausserordentlich kurz. Die Nasenhöhle ist seitlich auffallend stark erweitert. Die Nasalia sind kurz und sehr breit, verjüngen sich nach vorn und sind in der Mitte stark eingeschnürt. Die Interorbitalregion ist vorn etwas gewölbt, im hinteren Teil aber tief eingesunken. Der obere Rand der Augenhöhle ist scharfkantig. Ein Proc. postorbitalis fehlt, dagegen findet an der medialen Wand der Augenhöhle, eine senkrechte Protuberanz, ähnlich, wenn auch schwächer, wie bei *M. giganteus*. Der Jochbogen ist sehr breit, und hat seinen höchsten Punkt fast am hinteren Ansatz. Der Proc. infrazygomaticus ist lang, breit, sehr stark gedreht und nach aussen abstehend. Die Öffnung des Tränenkanals wird

vorn von der Maxilla begrenzt. Der Proc. paroccipitalis ist lang und schmal. Die Pars horizontalis des Gannmenbeins ist wie bei *M. robustus* sehr vollständig. Der vordere Gannmenbeins ist sehr kurz und breit, seine geringste Breite geht nur etwa $1\frac{1}{2}$ mal in die Länge des Diastemas; seine seitlichen Ränder sind abgerundet.

Unterkiefer: Kurz und gedrunen. Ramus sehr breit; Proc. coronoidens breit, mit nur wenig nach hinten gebogenem und abgerundetem oberen Ende.

Zähne :

Oberkiefer: Schneidezähne kurz und senkrecht eingesetzt. I_1 glatt, mit breiter Wurzel. I_2 klein mit Vertikalrille etwas vor der Mitte. I_3 lang, dreimal so lang wie I_2 , mit einer Kerbe im vorderen und gewöhnlich einer undeutlichen Vertikalrille im hinteren Drittel. Secator gross, lang, oval, mit scharfer Schneide. Molaren genau wie bei *M. giganteus*, mit wohlentwickelter vorderen Querleiste (mit Längsbrücke).

Unterkiefer: I_1 kurz und dick, mit Horizontalrille am oberen Rande. Secator gross, sanduhrförmig. Molaren wie bei *giganteus*.

♀. Nasenhöhle weniger erweitert; Nasalia mit fast geraden seitlichen Rändern.

Das Antilopenkänguruh hat nur einen sehr kleinen Verbreitungsbezirk: Arnhem Land, Northern Territory.

Das ♂ erscheint auf den ersten Blick *M. rob. woodwardi* ähnlich. Es zeigt jedoch eine auffallende weisse Beimischung, besonders an der Körperseiten und ist im Ganzen etwas dunkler. Das Rhinarium ist dreilappig. Der **Schädel** ist besonders charakterisiert durch die enorme Erweiterung der Nasenhöhle, den breiten vorderen Gannmen, den geringen Facialindex und die wohldefinierte Längsbrücke auf der vorderen Querleiste der Molaren.

Macropus robustus.

Körperbau gedrunen; Hinterbeine viel kürzer als bei *M. rufus* und *giganteus*.

Rhinarium gross, nackt, ohne mittlere Ausbuchtung. Ohren aussen bei einigen Formen mehr oder weniger nackt, bei andern dicht behaart. Mittelkralle des Hinterfusses kurz und oft ganz unter den langen Haaren an ihrer Basis verborgen. Krallen der Finger mässig lang, kaum gebogen und vorn abgerundet. ♀ immer viel kleiner und langhaariger und in der Regel wesentlich anders gefärbt als ♂.

Schädel: Die Nasalia sind kurz und breit; die Interorbitalregion ist nicht konvex, sondern in der Regel eingesunken; der obere Rand der Augenhöhle ist scharfkantig und wohldefiniert. Ein Proc. postorbitalis fehlt, bisweilen findet sich an seiner Stelle eine kleine Unebenheit. Die mediale Wand der Augenhöhle ist glatt. Der Jochbogen ist sehr breit und hat seinen höchsten Punkt ganz hinten, fast über dem Ansatz. Die Foramina incisiva sind kurz oder mässig lang. Die Pars horizontalis des Gannmenbeins ist sehr vollständig und hat ausser den beiden Foramina palatina nur wenige ganz kleine Löcher. Der vordere Teil des Gannmens ist seitlich wohldefiniert; er ist entweder breit, dann ist die Nasenhöhle seitlich nicht erweitert oder schmal, dann ist die Nasenhöhle seitlich erweitert. Intertemporalbreite sehr gering.

Unterkiefer: Recht variabel aber in den einzelnen Formen sehr konstant. Im Allgemeinen gedrunen. Proc. coronoidens oben abgerundet.

Zähne :

Oberkiefer: Schneidezähne kurz und in der Regel senkrechter eingesetzt als

bei *M. giganteus*. I_1 stark (oft einwärts) gebogen. I_3 gewöhnlich lang, bei jungen Tieren mit sehr starker, bei alten fast ohne mittlere Kerbe. P_3 schmal, mit Schneide, in der Mitte eingeschnürt. Secator gross und breit, hinten wenig breiter als vorn. Molaren mit schmaler aber wohl entwickelter vorderen Querleiste, die bisweilen (nicht immer) eine gewöhnlich undeutliche Längsbrücke trägt und sich gerne abreibt, wie bei *M. rufus*.

Unterkiefer: I_1 kurz und gedrungen, gewöhnlich mit medialer Kante. P_3 und Secator schmaler als im Oberkiefer. Molaren mit hohen Quer- und Längsleisten.

Das Bergkängurnh bewohnt die gebirgigen Teile ganz Australiens mit alleiniger Ausnahme des äussersten Südwestens, südlich vom Murchison River. Es bildet eine grosse Anzahl sehr scharf definierter und auch durch den Schädel unterscheidbarer Lokalformen, die alle, abgesehen von der zuerst bekannten Form, dem "Black Wallaroo," Neu-Süd-Wales' und Süd-Queenslands, mehr oder weniger rot sind. Eine Form (*M. rob. isabellinus*) lebt auf einer Insel und hat sich dort zu einer Zwergform entwickelt, die sehr weit von dem allgemeinen Typus abweicht.

Am nächsten ist *M. robustus* mit dem ebenfalls gebirgsbewohnenden *M. antilopinus* verwandt, während Rothschild's interessantes *M. hagenbecki* gewisse Charaktere, die sich bei *M. robustus* und *rufus* finden, vereint.

Die verschiedenen Formen sind folgendermassen zu unterscheiden :

Nach Schädelcharakteren : (für das erwachsene ♂ aufgestellt)

a_1 Basallänge unter 145 mm. *M. r. isabellinus*.

a_2 Basallänge über 150 mm.

b_1 Seitliche Ränder der Nasalia gerade oder fast so.

c_1 Vorderer Teil des Gaumens schmal. Proc. coronoidens schmal. Foramina incisiva kurz. Facialindex hoch *M. r. erubescens*.

c_2 Vorderer Teil des Gaumens sehr breit, sich nach vorn verjüngend. Proc. coronoidens gedrungen, oben mehr abgerundet. Foramina incisiva reichen hinten bis zur Naht. Facialindex gering. *M. r. reginae*.

b_2 Seitliche Ränder der Nasalia gekrümmt.

d_1 Vorderes Ende der Nasalia in eine lange Spitze ausgezogen (Spitze länger als die "vordere Breite" der Nasalia beträgt).

e_1 I_3 lang, Proc. coronoidens gedrungen *M. r. robustus*.

e_2 I_3 gewöhnlich kurz, Proc. coronoidens schlank *M. r. cervinus*.

d_2 vordere Spitze der Nasalia kurz (kürzer als die "vordere Breite")

f_1 Nasenhöhle seitlich stark erweitert ; Gaumen vorn schmal.

M. r. rubens.

f_2 Nasenhöhle seitlich nicht erweitert ; Gaumen vorn breit.

g_1 Proc. coronoidens hinten ziemlich spitz ; Facialindex über 260.

M. r. alexandriae.

g_2 Proc. coronoidens hinten sehr stumpf. Facialindex unter 260.

h_1 Hinterrand des Proc. coronoidens fast gerade, Nasalia von rechts nach links stark konvex *M. r. woodwardi*.

h_2 Hinterrand des Proc. coronoidens stark konkav, das Ende selbst ist sehr breit. Nasalia nicht konvex *M. r. alligatoris*.

b_3 Seitliche Ränder der Nasalia mit einem Knick nahe dem Hinterende. Jochbogenweite sehr gering. Gaumen vorn schmal, Proc. coronoidens schmal und oben scharf nach hinten umgebogen *M. r. argentatus*.

Nach äusseren Charakteren :

- a_1 Klein, Hinterfuss des ♂ unter 250 mm. ♂ und ♀ nicht sehr verschieden ;
Gesicht rot ; Ohren hinten ziemlich dunkel *M. r. isabellinus*.
- a_2 Gross ; Hinterfuss über 250 mm.
- b_1 ♂ russfarben, ♀ aschgrau *M. r. robustus*.
- b_2 Mehr oder weniger rot.
- c_1 Ohren hinten schwarz oder grau.
- d_1 Rhinarium hell eingefasst ; Oberseite weinrötlich (Haare des Rückens mit schiefergrauer Spitze) ; Arme stark mit schwarz gemischt, Hände kaum dunkler als Arme *M. r. reginae*.
- d_2 Rhinarium schmal dunkelbraun eingefasst ; Oberseite gelblich weinrot (Rückenhaare mit dunkelbrauner oder schwarzer Spitze) ; Hände viel dunkler als Arme *M. r. erubescens*.
- d_3 Innenseite der Oberschenkel beim ♂ fast schwarz, beim ♀ etwas dunkler als die Umgebung. Hinterseite der Ohren beim ♀ holzbraun
M. r. argentatus.
- e_2 Ohren hinten etwa von der Farbe des Kopfes.
- e_1 Behaarung kurz und rauh.
- f_1 { ♂ lebhaft hell rostrot ; keine Spur einer dunklen Beimischung.
♀ etwas langhaariger, mit grauem Gesicht und hellen Fingern
M. r. woodwardi.
- f_2 Farbe matt "fawn" ; Rückenhaare teilweise mit dunkler Spitze
M. r. alligatoris.
- e_2 Behaarung lang und zart.
- g_1 Haare sehr lang (ca. 3 cm.) ; ♂ tief rostbraun ; ♀ matter, mit grauem Gesicht *M. r. cervinus*.
- g_2 Haare kürzer (ca. 2 cm.) ; ♂ matt rostbraun ; ♀ hellgefärbt, mit rötlich weissem Gesicht *M. r. rubens*.
- b_3 Äussere Charaktere unbekannt *M. r. alexandriae*.

Macropus robustus robustus Gould.

Macropus robustus Thos., *Cat. Mars. Mon. Brit. Mus.* p. 22 (1888).

Behaarung dicht, rauh und ziemlich lang. Rückenhaare alle nach hinten gerichtet. Kein Haarwirbel im Nacken.

♂. Dunkel russfarbig sind Rücken, basaler Teil des Schwanzes, Aussenseite der Gliedmassen, Hinterseite der Ohren und Nasenrücken ; Nacken, Körperseiten, Wangen etwas matter. Am Kinn ein dunkler Fleck. Finger, Zehen, distaler Teil des Schwanzes schwarz. Unterseite und Innenseite der Gliedmassen graugelblich, an der Brust weisslich. Mundwinkel weisslich ; Ohren innen dicht weisslich behaart.

♀. Farbenverteilung ähnlich dem ♂, heller ; Oberseite, Kopf, Hinterseite der Ohren aschgrau. Wangen, Mundwinkel, Gliedmassen und Unterseite schmutzig weiss. Finger und Zehen schwärzlich russfarben. Am Kinn ein russfarbener Fleck. Schwanz fahl gelblichgrau, äusserste Spitze oben russfarben.

Schädel : Die Gesichtspartie ist mässig lang im Vergleich zur Gehirnkapsel. Die Nasenhöhle ist seitlich etwas gewölbt. Die Nasalia sind hinten sehr breit, verjüngen sich nach vorn, sind in der Mitte eingeschnürt und laufen in eine lange Spitze aus. Der Proe. infrazygomaticus ist kurz und breit. Die Öffnung des

Tränenkanals liegt ganz im Lacrimale, jedoch ganz vorn, fast an der Naht. Die Foramina incisiva sind kurz. Der vordere Gaumen ist breit; seine geringste Breite geht etwa zweimal in die Länge des Diastemas. Die Profillinie des Schädels ist eine gleichmässig konvexe Kurve, deren höchster Punkt etwa über der Mitte des Proc. zygomaticus des Schläfenbeins liegt.

Unterkiefer: Breit und gedrunken; Ramus und Corpus bilden einen mässig stumpfen Winkel; Condylus schwach konvex. Proc. coronoides breit, oben kaum umgebogen und abgerundet.

Zähne: I_3 lang mit undeutlicher Kerbe.

Hab. Neu-Süd-Wales und Süd-Queensland. Der Schädel ist dem von *M. r. cervinus* etwas ähnlich. Er unterscheidet sich durch die Form des vorderen Gaumens, des I_3 und des Proc. coronoides des Unterkiefers.

Macropus robustus cervinus Thos.

Thos., *P.Z.S.* 1900 p. 113; id., *Nov. Zool.* 1901 p. 395.

Macropus cervinus Cahn, *Zool. Beob.* xlviii, p. 2 (1907).

Behaarung lang und weich. Rückenhaare alle nach hinten gerichtet; kein Wirbel im Nacken. Ohren lang und breit.

♂. Ganze Oberseite und Scheitel tief dunkel rostrot; Wangen, Körperseiten und Oberschenkel etwas heller. Augen weisslich eingefasst; Nasenrücken schwärzlich braun; Mundwinkel weiss. Ohren hinten (spärlich behaart) etwas dunkler als Scheitel, innen mit langen, rein weissen Haaren. Stirn und Wangen gelbrötlich; Rhinarium schwarzbraun eingefasst. Arme hell gelbrötlich; Handwurzel dunkelgraubraun; Finger schwarzbraun. Unterschenkel gelblichgrau, allmählich in das Schwarzbraun der Zehen übergehend. Unterseite des Körpers weiss; Haare mit rötlicher Basis.

♂ kleiner; Oberseite mattrotlich isabell; Haare an der Basis lebhaft gelbrot mit dunkelbrauner Spitze. Körperseiten heller (Haare ohne dunkle Spitze). Nasenrücken dunkelbraun, weiss punktiert. Wangenhaare an der Basis dunkelgrau, obere Hälfte weiss (so dass ein grauer Ton im Gesicht entsteht). Kinn, Kehle und übrige Unterseite weiss; Haare mit rötlicher Basis. Gliedmassen etwas heller als beim ♂. Sonst wie ♂.

Die Jungen beiderlei Geschlechts sind lebhafter gefärbt, das ♂ etwa hell kastanienrot.

Schädel: Die Gesichtspartie ist ein Vergleich zur Gehirnkapsel lang. Die Nasenhöhle ist seitlich erweitert, am stärksten in der Gegend des Hinterendes der Praemaxilla. Die Nasalia sind für ein Känguruh der *robustus*-Gruppe lang; sie endigen in einer langausgezogenen Spitze; ihre seitlichen Ränder sind S-förmig und konvergieren nach vorn. Die Öffnung des Tränenkanals wird vorn von der Maxilla begrenzt. Die Foramina incisiva sind kurz. Der vordere Teil des Gaumens ist lang; seine geringste Breite geht etwa $2\frac{1}{2}$ mal in die Länge des Diastemas. Die Profillinie ist wie bei *M. robustus*, nur schwächer konvex. Der Jochbogen weicht etwas von dem typischen Bau ab; er ist hinten niedriger und im Allgemeinen recht schmal.

Unterkiefer: Schlank. Der Corpus bildet einen mässig grossen Winkel mit dem Ramus. Der Condylus ist konvex. Der Processus coronoides ist schmal, oben scharf nach hinten umgebogen und abgerundet.

Zähne: Wie *robustus*; der I_3 ist gewöhnlich in horizontaler Richtung sehr kurz.

♀ mit sehr geringem Facialindex.

Dieses Känguruh ist durch seine tiefrote Farbe (♂) und die lange, weiche, beim ♀ besonders stark ausgeprägte, Behaarung und die grossen Ohren ausgezeichnet. Äusserlich ist ihm *Macr. r. rubens* von N.W. Australien ähnlich; es ist im Allgemeinen heller, kurzhaariger, und zeigt sehr abweichenden Schädelbau und kürzere Ohren.* Das ♀ von *cervinus* hat ein ähnlich borstiges Gesicht wie das für dasjenige von *robustus* charakteristisch ist; auch das ♂ zeigt verlängerte Wangenhaare.

Lebende Exemplare im Zoologischen Garten zu Berlin und Frankfurt a/M. zeigen, dass die Behaarung im Winter noch wesentlich länger, die Farbe dagegen, besonders des ♂, bedeutend heller ist.

***Macropus robustus rubens* subsp. nov.**

Macr. rob. cervinus Thos., *Nov. Zool.* xi. p. 365 (1904).

Behaarung der Rückenmitte kurz, der Körperseiten mässig lang und weich. Rückenhaare alle nach hinten gerichtet, kein Wirbel im Nacken. Ohren kürzer als bei *cervinus*.

♂. Dem Männchen von *M. r. cervinus* sehr ähnlich, aber viel kurzhaariger, heller, besonders an Kopf und Nacken und mit etwas gelblichem Schimmer. Der Bauch ist rötlich, nicht weiss, wie bei *cervinus*; Brust und Kehle weiss. Hinterseite der Ohren schwärzlich braun (spärlich behaart), wie bei *M. r. isabellinus*. Die Rückenhaare sind an der Basis wesentlich heller als an der Spitze. Im Übrigen wie *cervinus*.

♀. Von dem Weibchen von *cervinus* ausserordentlich verschieden. Viel heller; sehr hell gelbrötlich, etwas grauer im Nacken; Rückenhaare ohne dunkle Spitzen. Körperseiten etwas heller als Rücken, von der Unterseite nur ein schmaler Streif in der Mittellinie weiss. Stirn, Wangen und Hinterseite der Ohren (spärlich behaart), etwas heller als der Rücken. Innenseite der Ohren weiss. Nasenrücken hell bräunlich, etwas mit schwarz gemischt. Arme und Beine gelblich, nach den Zehen zu dunkler werdend; Pfoten hellbraun, Zehen schwarz.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel sehr kurz. Die Nasenhöhle ist seitlich erweitert, am stärksten ein Stück vor dem Hinterende der Praemaxilla (weiter vorn als bei *cervinus*), und erscheint ganz vorn eingeschnürt. Die Nasalia sind vorn nicht viel schmaler als hinten; sie sind in der Mitte eingeschnürt, erweitern sich vorn noch einmal und laufen in eine Spitze aus, die wesentlich kürzer ist als bei *M. r. cervinus*. Der Processus infrazygomaticus ist schmal und stark gedreht. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die Foramina incisiva sind kurz. Der vordere Teil des Gaumens ist länger und etwas breiter als bei *cervinus*; seine geringste Breite geht etwa 3mal in die Länge des Diastemas. Der Jochbogen ist ungefähr wie bei *robustus*, nur ist er hinten etwas mehr abgerundet. Die Profilinie ist ähnlich wie bei *cervinus*; sie ist jedoch stärker konvex (ihr höchster Punkt liegt weiter vorn) und ist infolgedessen im Gesichtsteil abschüssiger. Die Interorbitalgegend ist nicht gewölbt.

Unterkiefer: Schlanker als bei *cervinus*; der Proc. coronoideus ist oben fast nicht umgebogen und etwas weniger rund am Ende als bei *cervinus*. Der Condylus ist konvex.

Zähne: I₃ ist in der Regel kürzer als bei *robustus*, ähnlich wie bei *cervinus*.

* Ohrlänge eines erwachsenen ♂ von *M. r. cervinus*, 110 mm.

♀ Schädel mit ausserordentlich geringem Facialindex.

Dieses Känguruh unterscheidet sich wesentlich von seinem nächsten Verwandten *M. r. cervinus*. Beide Geschlechter, besonders aber das ♀ sind heller gefärbt, viel kurzhaariger und kurzohriger. Im Schädelbau ist es durch die abweichende Form der Nasalia und der Schnauze, sowie den geringen Facialindex ausgezeichnet.

Hab. N.W. Australien; "Nördlicher Distrikt," Westaustralien.

Typus: B. M. 4. 1. 2. 8. ♂ ad., Box Soak; Tunney coll., 26. 9. 01.

Maasse des Typus: Rumpflänge 1050 mm.; Schwanz 925; Hinterfuss 390; Ohr 100. (Im Fleisch gemessen.)

Macropus robustus woodwardi Thos.

Thos., *Nov. Zool.* viii. p. 395 (1901).

Macr. woodwardi Cahn, *Zool. Beob.* xlviii. p 2 (1907).

Behaarung des ♂ sehr kurz, dünn, rauh und fest dem Körper anliegend, des ♀ länger und weicher. Im Nacken ein Wirbel, die Nackenhaare nach vorn gerichtet (wenigstens bei allen 4 mir vorliegenden Stücken).

♂. Oberseite sehr hell lebhaft rostrot, ebenso Kopf, Wangen und Oberseite der basalen Schwanzhälfte und die Hinterseite der Ohren. Die Haare sind gleichmässig bis fest zur Basis gefärbt, nur diese ist etwas heller (aber nicht weiss wie bei *M. antilopinus*). Arme und Beine rötlichgelb nach den Fingern resp. Zehen, dunkler werdend, diese selbst braunschwarz. Schwanz oben mit einem rostroten Streif, der nach der Spitze zu allmählich verschwindet; unten und Spitze fahl rötlichgelb Kinn mit auffallendem rostroten Fleck. Mundwinkel weiss. Nasenrücken schmutzig rötlich. Körperseiten etwas matter als Rückenmitte, ziemlich scharf abgesetzt von der gelblich weissen Unterseite. Ohren innen rötlich gelb.

♀. Farbenverteilung wie beim ♂ Behaarung länger und weicher. Oberseite isabellrötlich; Nackenhaare mit dunkler Spitze. Ohren aussen etwas lebhafter rot als der Kopf. Nasenrücken bräunlich grau. Innenseite der Ohren schmutzig weiss. Am Kinn ein undeutlicher schwärzlicher Fleck. Finger und Zehen weiss. Alles, was sonst beim ♂ gelblich oder rötlich ist weiss. Unterseite, Gliedmassen, n.s.w., mehr oder weniger rein weiss.

Das junge ♂ ist langhaariger und dunkler rot, das junge ♀ ist nicht wesentlich verschieden von dem erwachsenen.

Schädel: Mit kurzem Gesichtsteil im Vergleich zur Gehirnkapsel; die Schnauze ist seitlich nicht erweitert. Die Jochbogenweite ist sehr gross. Die Nasalia sind breit, vorn kaum weniger als hinten, in der Mitte etwas schmaler, sie laufen in eine kurze Spitze aus. Beachtenswert ist die Wölbung von rechts nach links. Der Proc. infrazygomaticus ist lang und breit und stark gedreht. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die Foramina incisiva sind lang und berühren hinten die Sutura incisiva. Der vordere Teil des Gaumens ist sehr breit, seine geringste. Breite geht etwa zweimal in die Länge des Diastemas. Die Profillinie steigt von hinten in S-förmiger Linie an, bis zum höchsten Punkte über dem vorderen Ende des Proc. zygomaticus des Schläfenbeins, und läuft von da in fast gerader Linie nach vorn (mit geringem Knick am Hinterende der Nasalia).

Unterkiefer: Sehr gedrunken; der Corpus sehr hoch und der Ramus sehr breit. Der Condylus ist konvex. Der Proc. coronoidens ist sehr breit, oben nicht umgebogen und abgerundet.

Zähne: I_3 immer kürzer als bei *robustus*, ohne Kerbe, mit undeutlicher Vertikalrille.

♀. Die seitlichen Ränder der Nasalia sind gerade.

Hab. Grant Range, Kimberley Division, N.W. Australien.

Das ♂ zeigt in der äusseren Erscheinung grosse Ähnlichkeit mit *M. antilopinus*. Es unterscheidet sich davon in erster Linie durch die Form des Rhinariums, die wie bei *robustus* ist. Die Haare des Rückens haben keine weisse Basis, und die Körperseiten sind nicht mit weiss gemischt. Das ♀ hat immer rote Ohrhinterseite. Der Schädel ist natürlich ganz anders gebaut wie der von *M. antilopinus*.

Macropus robustus isabellinus (Gould).

Macropus isabellinus Gould, P.Z.S. 1841, p. 81; Waite, *Rec. Austr. Mus.* iv. p. 131 (1901); Thos., *Cat. Mars. Mon. Brit. Mus.* p. 25 (1888); id. *Nor. Zool.* viii. p. 394 (1901).
Macropus robustus isabellinus Rothschild, *Nor. Zool.* xii. p. 510 (1905).

Behaarung kurz, sehr dicht und weich, an Körperseiten und Unterseite länger. Schwanz an der Spitze unten lang behaart.

♂. Oberseite rötlich isabell, an den Seiten etwas heller ebenso am Kopf; Nasenrücken rötlichgrau; Mundwinkel weisslich; am Kinn ein schwärzlicher Fleck; Wangen rötlich. Ohren, aussen rötlich, stark mit schwarz gemischt, innen spärlich weiss behaart. Gliedmassen schmutzig hellrötlich (Haare mit dunkler Spitze), nach den Fingern, resp. Zehen, hin rostbraun, diese selbst schwarzbraun. Schwanz, an der Basis wie der Rücken, der übrige Teil einfarbig gelbrötlich. Kehle und Brust reinweiss; Bauch rötlich weiss.

♀. Kleiner und heller; Unterseite ganz weiss.

Schädel: Der Gesichtsteil ist im Vergleich zur Gehirnkapsel sehr kurz. Die Nasenhöhle ist stark erweitert, die Schnauze ist sehr breit. Die Nasalia sind kurz, breit, in der Mitte eingeschnürt; sie endigen in eine kurze Spitze. An der medialen Wand der Augenhöhle findet sich ein schräger Wulst, ähnlich wie bei *M. antilopinus*. Ähnlich wie bei diesem ist auch die scharfkantige obere Begrenzung der Augenhöhle und die stark konkave Interorbitalregion. Die Öffnung des Tränenkanals wird vorn von der Maxilla begrenzt. Die Foramina incisiva sind lang und breit und werden hinten von der Maxilla gebildet, ganz wie bei *M. antilopinus*. Der Gaumen ist breit; seine geringste Breite geht zweimal in die Länge des Diastemas. Die Profilinie steigt hinten steil an, ist dann stark konvex, hat am Hinterende der Nasalia einen scharfen Knick und läuft dann in fast gerader Linie nach vorn; ihr höchster Punkt liegt etwa über der Mitte des Proc. zygomaticus des Schläfenbeins. Der Proc. infrazygomaticus ist schmal und lang.

Unterkiefer: Kurz und gedrungen; Corpus und Ramus bilden fast einen rechten Winkel; der Ramus sehr breit. Der Condylus ist fast plan. Der Proc. coronoidens ist schlank, oben ziemlich breit, scharf umgebogen und abgerundet.

Zähne: wie bei *M. r. woodwardi*.

Hab. Barrow Island, N.W. Australien.

Dieses Känguruh ist jedenfalls das aberranteste der ganzen *robustus*-Gruppe. Es stellt eine offenbar verkümmerte Inselform dar. ♂ und ♀ sind bei Weitem nicht so verschieden wie bei den andern Formen. In der Grösse bleibt es bedeutend hinter allen "grossen Känguruhs" zurück; es ist tatsächlich nicht grösser als die mittलगrossen Wallabies. Der **Schädel** zeigt eine Reihe von Charakteren, wie sie sich bei *M. antilopinus*, oft noch ausgeprägter, finden: Form der Schnauze, der

Interorbitalgegend, der Foramina incisiva, Lage der Öffnung des Tränenkanals, und geringer Facialindex. Im Allgemeinen zeigt der Schädel jedoch Charaktere, die entschieden *robustus*-artig sind: Form des Jochbogens, des Proc. infrazygomaticus, des Gaumens und vor allem der Zähne. Ich betrachte es deshalb für ein, allerdings stark spezialisiertes, Glied der *robustus*-Gruppe.

Macropus robustus alligatoris Thos.

Thos., *Nor. Zool.* xi. p. 224 (1904).

Behaarung dicht, aber sehr kurz, rauh und fest dem Körper anliegend. Im Nacken ein Wirbel.

♂. Oberseite dunkel rötlich isabell; Haare der Rückenmitte mit dunkelbraunen Spitzen, der Körperseiten ohne solche. Unterseite rötlich weiss, nach hinten zu mehr rötlich. Am Kinn ein schwarzbrauner Fleck. Scheitel ähnlich dem Nacken gefärbt; Hinterseite der Ohren dicht mit kurzen Haaren von der Farbe des Kopfes besetzt; Innenseite der Ohren rötlich weiss. Gliedmassen etwas matter als der Körper, nach unten zu heller werdend; Finger und Zehen dunkelbraun. Schwanz einfarbig hellrötlich isabell. Nasenrücken dunkelbraun. Wangen hellrötlich.

♀ ? Die beiden ♀, die Thomas (*Nor. Zool.* xi. p. 224) erwähnt, erweisen sich als *M. bernardus* (vergl. auch Collett, *P.Z.S.* 1897: *Macropus robustus*).

Schädel: Gesichtsteil kurz im Vergleich zur Gehirnkapsel. Die Nasenhöhle ist seitlich nicht erweitert; die Schnauze verjüngt sich nach vorn. Die Nasalia sind kurz und breit; ihre seitlichen Ränder konvergieren in ganz schwach gekrümmten Linien und gehen vorn allmählich (ohne Knick) in die kurze Spitze über. Der Proc. infrazygomaticus ist kurz und schmal. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die Foramina incisiva sind kurz; der vordere Teil des Gaumens ist sehr breit; seine geringste Breite geht etwa zweimal in die Länge des Diastemas. Die Profilinie steigt von hinten gerade an, bis zum höchsten Punkt über dem hinteren Ansatz des Jochbogens, fällt von da sehr schwach ab bis zum Hinterende der Nasalia und dann sehr stark bis vorn. Das Hinterende der Praemaxilla ist sehr kurz und reicht nur bis etwa ein Drittel der Nasalia nach hinten.

Zähne: Wie *robustus*.

Unterkiefer: Sehr gedrungen. Corpus sehr hoch und Ramus sehr breit; beide bilden fast einen rechten Winkel. Der Condylus ist konvex. Der Processus coronoides ist breit, oben wenig umgebogen und ganz abgerundet.

Hab. South Alligator River, Arnhem Land, Northern Territory.

Dieses Känguruh steht in der Art der Behaarung *M. r. woodwardi* am nächsten. In der Farbe ist es jedoch gänzlich verschieden und gleicht in dieser Beziehung am meisten dem südanstralischen *M. r. erubescens*. Von diesem unterscheidet es sich durch die kurze Behaarung, die rote Ohrhinterseite und die mehr gelbrötliche Farbe. Der Schädel ist eigentlich etwas Besonderes für sich; er lässt sich vielleicht am ehesten noch mit dem von *M. r. woodwardi* vergleichen, von dem ihn auf den ersten Blick die Form des Processus coronoides des Unterkiefers unterscheidet.

Macropus robustus alexandriae subsp. nov.

Schädel: Der Gesichtsteil ist im Vergleich zur Gehirnkapsel kurz; die Nasenhöhle ist seitlich nicht erweitert, und die Schnauze verjüngt sich nach vorn. Die Nasalia sind breit, vorn etwas schmaler als hinten, und in der Mitte

eingeschnürt; sie endigen in eine kurze Spitze. Der vordere Teil der Inter-orbitalgegend ist etwas gewölbt. An der medialen Wand der Augenhöhle findet sich oben eine kleine Protuberanz. Die Öffnung des Tränenkanals liegt ganz im Lacrimale, ganz vorn, fast an der Naht. Die Foramina incisiva reichen fast bis zur Sutura incisiva. Der vordere Teil des Gannens ist kurz und breit, seine geringste Breite geht etwa zweimal in die Länge des Diastemas. Die Profilinie steigt von hinten konkav sanft bis zum höchsten Punkt über dem hinteren Ansatz des Jochbogens an, läuft von da sehr schwach abfallend bis zum Hinterrande der Nasalia und von da abschüssiger nach vorn. Das Hinterende der Praemaxilla ist sehr lang ausgezogen, und reicht fast bis $\frac{3}{4}$ der Länge der Nasalia.

Unterkiefer: Nicht ganz unähnlich dem von *M. robustus*, aber mit breiterem Ramus und höherem und kürzerem Corpus, die einen kleineren Winkel bilden als bei *robustus*. Der Condylus ist konvex. Der Processus coronoidens ist schlank, oben kaum umgebogen und in eine etwas abgestumpfte Spitze endend.

Zähne: Wie die von *robustus*.

Dieser Schädel unterscheidet sich von *M. robustus*, dem er nahe steht, durch die Form der Nasalia, den kurzen und gedrunghenen Unterkiefer und den etwas zugespitzten Proc. coronoidens. Die beiden nächsten Nachbarn *M. r. alligatoris* und *M. r. reginae* unterscheiden sich beide recht wesentlich, ersteres besonders durch den abgerundeten Proc. coronoidens und letzteres durch die fast geradlinig begrenzten Nasalia.

Von dieser Form liegt mir nur der Schädel vor.

Hab. Alexandria, Northern Territory.

Typus. B.M. 6. 11. 8. 15. ♂ ad. W. Stalker coll.

***Macropus robustus reginae* subsp. nov.**

M. r. erubescens Thos. et Dollm., *P.Z.S.* 1908 p. 792.

Behaarung lang, dicht und rauh. Bisweilen (nicht immer) ein Haarwirbel im Nacken.

♂. Oberseite hell weinrot, stark mit schiefergrau gemischt. Die Haare haben, ausser im Nacken schiefergraue Spitzen. Haare der Unterseite an der Basis aschgrau mit weisser Spitze, nach den Seiten zu ohne solche, so dass ein undeutliches hell aschgraues Band entsteht, das sich von den Schultern am Bauch entlang bis nach den Hüften zieht. Brust und Kehle gelblich weiss; am Kinn ein schwärzlicher Fleck. Scheitel, Schläfen und Ohrbasis lebhafter rötlich als der Nacken. Nasenrücken, Stirn und Wangen dunkelbraun und weisslich gesprenkelt; Rhinarium **weisslich** eingefasst. Hinterseite der Ohren mit langen schwarzen, Innenseite mit langen gelblichweissen Haaren dicht besetzt. Arme gelblich, bis weit hinauf mit schwarzen Haaren gemischt; Pfoten nicht oder kaum dunkler. Beine gelblich; Fusswurzel stark mit schwarz gemischt; Zehen schwarz. Schwanzbasis ähnlich dem Rücken, jedoch graner; die Haare haben nur wenig rot an der Basis; nach dem Ende zu fahlgelb, mit etwas schwarz gemischt.

♀. Haare der Oberseite an der Basis ganz hell rötlich, in der Rückenmitte mit aschgraner, an den Körperseiten mit weisser Spitze. Scheitel und Gesicht mehr oder weniger dunkelgrau und weiss gesprenkelt, Wangen weisslich. Ohrhinterseite an der Basis **dunkelgrau**, nach der Spitze zu heller grau bis weiss. Innenseite weisslich. Vor der Ohröffnung findet sich ein auffallender gelber

Wirbel. Unterseite rein weiss, Haare mit wenig grau an der Basis. Schwanzbasis wie der Rücken. Im Übrigen dem ♂ ähnlich, aber kleiner. Bisweilen finden sich ziemlich rote ♀, die aber immer die graue Ohrbasis zeigen.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel kurz. Die Nasenhöhle ist seitlich nicht erweitert. Die Schnauze verjüngt sich nach vorn, und ist immer wesentlich schmaler als bei *erubescens*. Die Nasalia sind kurz und breit, verjüngen sich fast gleichmässig nach vorn und enden in einer kurzen Spitze. Der Processus infrazygomaticus ist etwas länger und breiter als bei *erubescens*. An der Stelle des Proc. postorbitalis findet sich eine kleine Unebenheit. Die Öffnung des Tränenkanals wird meist vorn von der Maxilla begrenzt. Die Foramina incisiva sind lang und reichen bis zur Sutura incisiva. Der vordere Teil des Gaumens ist kurz und sehr breit und verjüngt sich stark nach vorn; seine geringste Breite geht wenig mehr als zweimal in die Länge des Diastemas. Die Profilinie ist eine gleichmässig konvexe Linie, deren höchster Punkt über dem hinteren Drittel des Proc. zygomaticus des Schläfenbeins liegt.

Unterkiefer: Kurz und gedrunken; der Corpus bildet einen fast rechten Winkel mit dem Ramus. Der Condylus ist schwach konvex. Der Processus coronoidens ist gedrunken, oben mit einem kurzen, stumpfen hinteren Fortsatz.

Zähne: Wie *robustus*, doch ist der "Secator" etwas kleiner.

♀ kleiner und sehr breit an den Jochbögen.

Dieses Känguruh steht *Macr. rob. erubescens*, von dem es geographisch weit getrennt ist, in seiner äusseren Erscheinung recht nahe; es ist jedoch mehr weinrötlich, die Muffel ist weisslich, nicht braun, eingefasst; die Spitzen der Rückenhaare sind schiefergrau, nicht braun oder schwarzbräunlich, und die Pfoten sind nicht oder kaum dunkler als die Arme.

Im Sommer (Haarwechsel) etwas lebhafter, mehr mit gelblichem Anflug, und die dunklen Haarspitzen sind, obwohl deutlich, nicht so auffallend.

Der Schädel unterscheidet sich von dem von *M. r. erubescens* durch die schmale, sich nach vorn verjüngende, Schnauze, die verhältnissmässig grosse Jochbogenweite, die Breite des vorderen Gaumens und den geringen Facialindex.

Hab. Nord-Queensland. Zur Untersuchung lag mir die grosse Serie von Inkeruan (Ingram- und Forrest-Sammlung) im British Museum vor, die jedes Geschlecht und Alter in allen Jahreszeiten repräsentiert. Leider fehlt ein ganz erwachsenes Männchen, und so habe ich zum Typus ein fast erwachsenes ♂ gewählt. In der Tabelle finden sich zum Vergleich die Maasse (Schädel) eines ungefähr gleichaltrigen *M. r. erubescens*.

Typus: B. M. S. 8. 8. 55., ♂ subad., W. Stalker coll. 25. 1. 07. Mt. Abbot, südöstl. Townsville, N. Queensland.

Maasse des Typus: Rumpflänge 1060 mm.; Schwanz 825; Hinterfuss 292; Ohr 102. (Im Fleisch gemessen.)

Macropus robustus erubescens (Sel.).

Halmaturus erubescens Sel., *P.Z.S.* 1870 p. 126.

Macropus robustus Thos., *Cat. Mars. Mon. Brit. Mus.* p. 23 (1888).

Macropus rob. erubescens Thos., *P.Z.S.* 1900 p. 113; Rothsch., *Nor. Zool.* xii. p. 510 (1905).

Behaarung ziemlich lang, rauh und dicht. Bisweilen ein Haarwirbel im Nacken.

♂. Oberseite gelbweinrötlich; Haare des Hinterrückens mit schwarzen (oder

schwarzbraunen) Spitzen. Kopf ähnlich dem Nacken, ebenso Ohrbasis ; Hinterseite der Ohren schwarz behaart ; Innenseite spärlich grau behaart. Nasenrücken dunkelgrau; Mundwinkel weiss ; Rhinarium schwarzbraun eingefasst ; Wangen hellrötlich. Brust und Kehle weisslich ; Bauch hellrötlich ; am Kinn ein schwärzlicher Fleck. Gliedmassen rötlich weiss bis rötlich grau, das allmählich in das Schwarz der Zehen übergeht. Schwanz : Oberseite wie der Rücken, stark mit schwarz gemischt, äusserstes Ende schwarzbraun ; Unterseite fahl gelb.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel lang. Die Nasenhöhle ist seitlich gleichmässig erweitert ; die Schnauze erscheint daher von oben zylindrisch. Die Nasalia sind für ein Känguruh der *robustus*-Gruppe lang und schmal, verjüngen sich nach vorn wenig, wenn überhaupt, und sind hinten nur wenig erweitert ; sie endigen vorn in eine kurze Spitze ; ihre seitlichen Ränder sind einander fast parallele gerade Linien. Der Proc. infrazygomatikus ist schmal und ziemlich lang. Die Öffnung des Tränenkanals liegt ganz im Lacrimale, jedoch ganz vorn, fast an der Sutura lacrimo-maxillaris. Die Foramina incisiva sind mässig lang. Der vordere Teil des Gaumens ist verhältnissmässig schmal und lang ; seine geringste Breite geht etwa $2\frac{1}{2}$ mal in die Länge des Diastemas. Die Profilinie steigt hinten ziemlich steil an bis zum höchsten Punkt etwas vor dem hinteren Ansatz des Jochbogens und läuft von da, absteigend, in schwach konvexer, nicht ganz gleichmässiger Linie nach vorn.

Unterkiefer: Schlank ; der Corpus bildet einen ansehnlichen Winkel mit dem Ramus. Der Condylus ist konvex. Der Processus coronoides ist lang, schmal, und läuft ziemlich spitz zu.

Zähne: Wie *robustus* ; die Wurzeln der beiden oberen I_1 etwas näher zusammen und I_3 meistens etwas kürzer.

Von dieser Form liegt mir nur das ♂ vor, und ich kann infolge dessen keine Beschreibung des ♀ geben.

Hab. Südaustralien, das Gebiet um den Spencer's Golf. Spencer* erwähnt den "Euro" auch für Central-Australien, ob das aber *M. rob. erubescens* oder irgend eine andere Lokalforn von *M. robustus* ist, kann ich nicht entscheiden. Aus dem Innern Nordaustraliens kommt *M. rob. alexandriae*.

Macropus robustus argentatus (Rothsch.).

Macropus argentatus Rothsch., *Nor. Zool.* xii, p. 509 (1905).

Behaarung dicht, lang rauh. Rückenhaare alle nach hinten gerichtet ; kein Wirbel im Nacken.

♂. Nacken lebhaft dunkelrostrot ; Rücken viel matter und stark mit schwarz gemischt, ebenso Scheitel und Stirn. Nasenrücken grau, vorn braun. Wangen dunkelgrau, etwas mit weiss gemischt ; Augen weisslich eingefasst ; Mundwinkel weiss ; am Kinn ein schwarzer Fleck. Haare der Unterseite mit dunkelgrauer Basis. Arme dunkelgrau mit weiss gemischt ; Pfoten schwarz. Oberschenkel aussen wie der Körper, innen grauschwarz ; Unterschenkel grau ; Zehen schwarz. Schwanz oben dunkel grau, unten heller ; Spitze schwarz. Ohren aussen braunschwarz, innen gelblich weiss (langhaarig).

♀. Rückenmitte, Scheitel und Stirn bräunlich grau ; Körperseiten und Unterseite weiss. Nasenrücken bräunlich. Ohren aussen dicht holzbraun, innen gelblich

* *Report of the Horn Exp., Mamm.* p. 14 (1896).

SCHÄDELMAASSE II. (in mm.).

Exemplar.	M. robustus.	M. rob. cervinus.	M. rob. rubens.	M. rob. woodwardi.	M. rob. isabellinus.	M. rob. alligatoris.	M. rob. alexandriae.	M. rob. reginae.	M. rob. erubescens.	M. rob. argentatus.	M. hagenbecki.
	46.4.4.2.	0.2.6.1.	4.1.2.8. 4.1.2.10. (Typ.)	0.6.1.1. (Typ.)	1.5.2.1. 1.5.2.3.	Typus.	6.1.9.15. (Typ.)	8.8.5.5. 8.8.8.6.1. (Typ.)	10.4.28.1.	Typus.	Typus.
Geschlecht, Alter.	♂ ad.	♂ ad.	♂ ad. ♀ ad.	♂ ad.	♂ ad. ♀ ad.	♂ ad.	♂ ad.	♂ subad. ♀ ad.	♂ subad.	♂ subad.	♂ juv.
Grösste Länge . . .	185	179	172 145	163	156 136	165	180	163 151	162	170	156
Basallänge . . .	171	170	158 132	158	144 122	155	166	148 140	149	151	139
Grösste Breite . . .	98	92	90 82	97	90 79	91	93	92 86	90	87	86
Nasalia : Breite hinten . . .	32.5	28	28 22	28.5	22.5 21	26	30	25 25	26	25	25.5
„ „ in der Mitte . . .	22	21	21 16	23	18 17	19	21.5	18 19.5	20	18	ca 17
„ „ vorn . . .	18	18.8	20 15	21	18 14.5	17	21	15.5 15.5	17	16.5	ca 15.5
„ „ Länge . . .	76	77.5	75 59	75	61 51	66	72	70 65	65	ca 67	65
Intertemporalbreite . . .	18	15	16.5 15.5	16	12 14	14	13.5	18.5 16	14	19	19
Palatabreite incl. m ₂ . . .	47	45	43 41	50	45 42	44	44	45 42.5	45.5	46	45.5
„ „ excl. m ₂ . . .	30.5	30	29 26	35	30 27	28	29	35 27	29	28	26.5
Palatallänge. . .	117	113	106 90	107	94 80	107	112	102 96	102	105	96
Diastema . . .	43	44.5	47 38	43	37 30	40	40	42 33	41	42	40 (p ₂)
Basiraciaculase . . .	48	47	47 49	46	42.5 37	45	48	43 42	42	42	38
Basifacialachse . . .	127	126	120 99	118	107.5 89	115	126	110 103	111	116	106
Facialindex. . .	265	268	255 99	256.5	253 241	256	262	256 246	264	276	278
Länge des I ₁ . . .	10	7	6 8	9	8.5 7.5	9	9.5	8.2 8	8.5	9	10
„ „ „Secator“ . . .	92	—	—	—	—	8	—	8.5 —	9	9	8(p ₂)9(mp ₁)
„ „ m ₁ . . .	10	10	9 9	10	10 9	10	—	9.5 10	10	11	11
„ „ m ₂ . . .	12	12	10 10	11	11 9	11.5	11	11.5 11	11	12	13
„ „ m ₃ . . .	13	13.5	12 11	13	11 10	13	14	13 13	13	12	—
„ „ m ₄ . . .	14.5	14	13 13	14	12 12	15	16	— 13.5	—	—	—
„ „ von m ₁ -m ₃ . . .	33	—	28 29	31.5	30 27	33	—	33 31	32	34	30(mp ₁ -m ₂)
Länge der Foramina incisiva	81	10	8.2 8	11	12 10	9.2	12	10 9	8	10	12

weiss behaart; Wangen gelbgrau. Mundwinkel gelblich, darüber ein schwarzer Strich. Gliedmassen hell weissgrau, Pfoten und Zehen schwarz.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel sehr lang (Facialindex beim noch nicht erwachsenen ♂ 278). Die Schnauze ist seitlich gewölbt, und verjüngt sich nach vorn. Die Nasalia sind ziemlich kurz und schmal; sie sind hinten am breitesten, verjüngen sich nach vorn, und sind in der Mitte scharf eingeschnürt; ihre seitlichen Ränder laufen hinten zuerst parallel, haben dann einen Knick und konvergieren von da in S-förmiger Linie. Ein Proc. postorbitalis ist deutlich ausgebildet. Der Processus infra-zygomaticus ist kurz und schmal. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die Foramina incisiva sind kurz und liegen ganz in der Praemaxilla. Der Proc. paroccipitalis ist kurz und schmal. Der Gaumen ist vorn lang und schmal; seine geringste Breite geht etwa $2\frac{1}{2}$ mal in die Länge des Diastemas. Die Profilinie steigt hinten steil, konkav, bis zum höchsten Punkte, über dem hinteren Ansatz des Jochbogens, an und läuft von da fast gerade nach vorn.

Unterkiefer: Corpus mässig lang und bildet mit dem Ramus einen verhältnissmässig stumpfen Winkel. Condylus konkav. Proc. coronoidens sehr lang schmal, oben scharf nach hinten umgebogen, mit langem Fortsatz.

Zähne: Wie *robustus*.

Dieses Känguruh gehört seiner äusseren Erscheinung nach, sowie der Tatsache, dass das ♀ grau ist in die Nähe von *M. r. erubescens* und *reginae*. Es ist besonders durch die grauschwarze Innenseite der Oberschenkel und die reiche Farbe (♂) ausgezeichnet. Der Schädel ist charakterisiert durch die Form der Nasalia, des Proc. coronoidens und den grossen Facialindex.

Hab. Angeblich Nord-Australien; genauer Fundort unbekannt.

Macropus hagenbecki Rothsch.

Rothschild, *Nor. Zool.* xiv, p. 14 (1907).

Macropus magnus Rothsch., *Nor. Zool.* xii, p. 509 (1905).

Behaarung dicht und wollig, etwas länger als bei *M. rufus* Rückenhaare alle nach hinten gerichtet; kein Wirbel im Nacken. Rhinarium wie *M. robustus*, ebenso Ohren. Körperbau gedrungen. Anordnung der Haare im Gesicht wie *M. robustus*.

♂. Oberseite stumpf kastanienrot, ebenso Scheitel; Stirnhaare mit schwärzlicher Spitze; Nasenrücken graubraun, nach vorn zu heller. Wangenhaare rot mit dunkler Spitze, nach unten zu schiefergrau; Augen rot eingefasst. Am Kinn ein schwarzer Fleck. Kehle weisslich, scharf von den dunkeln Wangen abgesetzt (wie *rufus*). Oberlippe rein weiss, zu beiden Seiten von einem schwarzen Fleck scharf begrenzt (wie *rufus*). Ohren hinten braunschwarz, innen dicht gelblich weiss behaart. Schultern dunkel blaugrau; Arme dunkelgrau mit etwas weiss gemischt; Innenseite der Arme weisslich (Haare mit rötlich grauer Basis). Pfoten schwarz. Beine aussen dunkelgrau, Zehen schwarz; Innenseite der Oberschenkel grauschwarz, der Unterschenkel weiss. Schwanz fahl gelblich. Brust und Hinterbauch weisslich (Haare mit dunkler Basis). Der grösste Teil des Banches dunkelschiefergrau, nur in der Mittellinie etwas mit weiss gemischt.

Schädel: Die Gesichtspartie ist im Vergleich zur Gehirnkapsel sehr lang. Die Nasenhöhle ist seitlich wenig gewölbt und die Schnauze verjüngt sich nach vorn. Die Nasalia sind ziemlich lang; sie verjüngen sich nach vorn und sind

in der Mitte nicht eingeschnürt. Die Interorbitalregion ist nicht gewölbt; der obere Rand der Augenhöhle ist scharf begrenzt. Ein Proc. postorbitalis ist deutlich entwickelt. Die mediale Wand der Augenhöhle ist glatt. Der Jochbogen ist im Allgemeinen *robustus*-artig, jedoch niedriger und mit kurzem, breitem Proc. infrazygomaticus. Die Öffnung des Tränenkanals liegt ganz im Lacrimale. Die Foramina incisiva sind lang und werden hinten von der Maxilla begrenzt. Der Proc. paroccipitalis ist breit, ähnlich wie bei *M. rufus*. Die Pars horizontalis des Gaumens ist fast vollständig, ganz wie bei *M. robustus*. Der vordere Gaumen ist lang und schmal, vorn eingeschnürt und seitlich scharfkantig.

Zähne :

Oberkiefer : Wurzeln der beiden I_1 nahe zusammen. I_1 breit und sehr stark gebogen, mit Vertikalrille etwas hinter der Mitte. Wurzel des I_2 ganz nahe an der I_1 . I_2 schmal. I_3 schief eingesetzt, seine Wurzel weit von der des I_2 entfernt, lang (in horizontaler Richtung) mit Kerbe im vorderen Drittel, ganz unten an der Schneide. Molaren mit ziemlich schmaler vorderen Querleiste (ohne Längsbrücke).

Unterkiefer : Corpus lang und schmal, bildet mit dem Ramus einen stumpfen Winkel. Condylus konvex. Proc. coronoidens schmal, oben umgebogen mit hinterem Fortsatz.

Zähne : I_1 seitlich komprimiert, mit scharfer Schneide und unteren Kante und stumpfer medialer Kante und horizontaler Rille nahe dem oberen Rande. P_3 sehr klein, dreispitzig. Molaren mit normalen Quer- und Längsleisten.

Abgesehen von dem "Schwarzen Wallaby" (*M. bernardus*) ist dieses Känguruh wohl die interessanteste Entdeckung der letzten Jahre. Von den einzigen zwei bekannten Exemplaren ist das eine verloren gegangen, und der Typus ist ganz jung. (Der Milchsektor und P_3 stehen noch, und die beiden letzten Molaren stecken noch mehr oder weniger im Knochen). Trotzdem ist der Facialindex 278, d.h. ebenso gross, wenn nicht grösser als bei *M. rufus*. Das Auffallendste ist aber die äussere Erscheinung: die wollige Behaarung, die Gesichtszeichnung, die scharf abgesetzte helle Kehle, Eigenschaften die stark an *M. rufus* erinnern. Andererseits ist der Gesamthabitus recht *robustus*-artig und erinnert einigermaßen an *M. rob. argentatus*. Die **Heimat** dieses interessanten Känguruhs soll, wie mir Herr Baron W. von Rothschild frdl. mitteilt, die Gegend des South Alligator River (Northern Territory) sein, also das gleiche Gebiet, das auch von *M. rob. alligatoris*, *M. antilopinus* und *M. bernardus* bewohnt wird. Hoffentlich liegt bald mehr Material vor, das es ermöglicht, eine endgültige Meinung über die genaue systematische Stellung und die Verbreitung dieser schönen Art abzugeben.

NOTES ON EAGLE-OWLS.

BY THE HON. WALTER ROTHSCHILD AND ERNST HARTERT.

ABOUT a year ago we were told that a form of the Egyptian Eagle-Owl occurred in Asia Minor. We therefore asked Mr. Carl Hilgert, who has a correspondent in Asia Minor, to procure us some specimens. This he did, and we received four adult Eagle-Owls from Eregli, north of the Taurus Mountains. They were, however, in no way like the Egyptian Eagle-Owl, but very closely allied to *Bubo bubo turcomanus*. They led us to compare the series of Eagle-Owls in the Tring Museum, in which we have been particularly interested for some time, with the following results:

***Bubo bubo bubo* (L.).**

Strix Bubo Linnaeus, *Syst. Nat.* ed. x. p. 92 (1758—"Habitat in Europa." Terra typica: "Sweden," from the first quotation: "Fn. svec. 45").

We have examined thirty-eight skins from Europe which we consider to belong to this form. We are not able to separate any subspecies, except from the farthest south-west (Spain) and the south-eastern parts of Russia (Southern Ural and Caucasus). A good series from Norway and Sweden, and numerous skins from Germany, show these birds to be absolutely the same, and examples from Dalmatia, Croatia, Greece, and Italy are inseparable. Far from being in any way smaller, we find very large examples among the series from Southern Europe. This form is the darkest of all. The black shaft-stripes on the chest are broad, and there are generally very distinct cross-bars. It extends into Northern and Central Russia.

An Eagle-Owl which must be very closely allied to *B. bubo bubo* is found in Northern Algeria. Loche distinctly says that he had specimens, and Taczanowski saw a stuffed one in the possession of an officer. Probably the Algerian Eagle-Owl will be found to differ slightly from the North European one. We suspect that it will only be found in the Northern Atlas Mountains, while *B. b. ascalaphus* inhabits the southern ranges.

***Bubo bubo hispanus* subsp. nov.**

? *Bubo maximus occidentalis* A. E. Brehm, *Verz. Samml.* p. 2 (1866—Nomen nudum!).

The examination of seven Spanish Eagle-Owls, from Aguilas (Gray coll.), Malaga, and Madrid, shows that they differ slightly from *B. bubo bubo*. As long ago as 1857 A. E. Brehm remarked (*Naturh. Zeitung* iii. p. 441) that he was almost inclined to consider the Spanish Eagle-Owls as synonymous with *B. sibiricus*. Also, Professor Koenig remarked to one of us (*in litteris*) that he thought the Spanish form was separable.

This is indeed the case, for the under surface is as a rule much paler, and the wing averages from 2 to 5 cm. shorter. The black longitudinal marks on the chest are sharply defined, and generally without cross-markings laterally.

No name is available for this form. A. E. Brehm, in the list of C. L. Brehm's collection, mentions a "*Bubo maximus occidentalis*" without description and locality. This name was probably meant for the Spanish race, as it is scratched on the label of the Spanish Eagle-Owl in the Brehm collection.

The type of *Bubo bubo hispanus* is a male in the Tring Museum shot at a nest containing two eggs near Aguilas, February 12, 1898, by Mr. Gray. An adult female from the same place, also shot from a nest, resembles more the

northern *B. bubo bubo*, except that the black stripes on the chest are very wide. It is also rather larger than other Spanish skins, the wing measuring nearly 47 cm.

***Bubo bubo interpositus* subsp. nov.**

This form is intermediate between *B. bubo bubo* and *B. bubo turcomana*, but nearest to the latter. It differs, however, from *B. b. turcomana* in having wider shaft-stripes to the feathers of the abdomen, a darker brown ground-colour on the feathers of the hind-neck and upper back, and, usually, more black on the scapulars, lower back, and upper tail-coverts. The underside of the quills is also darker than in *B. b. turcomana*, while in *B. b. bubo* it is often still darker.

B. b. interpositus is lighter above and below than any specimens of *B. bubo bubo*, and not so blackish above as the Spanish form (*B. b. hispanus*).

In size this new form does not differ from *B. bubo bubo*.

Type: ♂ ad., 15. iii. 1909, Eregli, north of the Cilician Taurus, in Asia Minor, collected by Mr. C. Hilgert's collector.

Besides the specimens from Eregli, those from the Caucasus (Wladikawkas), and from the Lower Wolga (Sarepta), belong to this form. It is possible that other forms—viz. *B. b. sibiricus* and *B. b. turcomana*—visit the Lower Wolga in winter; but four specimens which we were able to examine are indistinguishable from the type of *B. b. interpositus*, and not like any of the other forms.

We have examined five skins from Eregli—four in the Tring Museum and one in Professor Koenig's collection; two from Wladikawkas, Northern Caucasus; and four from Sarepta.

***Bubo bubo turcomana* Eversm.**

Strix turcomana Eversmann, *Addenda ad Pallasii Zoograph. Rosso-Asiat.* i. p. 3 (1835—Between the Caspian and Aral Seas).

This race is much lighter than *B. b. bubo* and *B. b. hispanus*, and also distinctly lighter, more yellowish and more sandy, than *B. b. interpositus*. Especially the ground-colour of the occiput, hind-neck and upper back is lighter, also the under surface of the quills. Generally *B. b. turcomana* is also smaller and slenderer than *B. b. bubo*, but some specimens are apparently as big as any northern Eagle-Owl. Single specimens are sometimes hardly distinguishable from *B. b. interpositus*, but as a rule they are very well separable.

We have before us twenty-two specimens belonging to *B. b. turcomana*. They are from Transcaspia, Russian Turkestan (Issik Kul, Tian Shan, Aksu, Djarkend, Karakol, Margelan, Merw), Kerat in East Persia, Persian Baluchistan, and one from Blagoslovenka, near Orenburg, in the Southern Ural. The latter was obtained on December 5, 1888, by N. Zarudny, and marked as *Bubo ignavus* (= *B. b. bubo*). It is absolutely like Transcaspian and Turkestan examples, and neither to be confounded with *B. b. bubo* nor with *B. b. sibiricus*. The latter, however, appears to be found in winter near Orenburg as well.

We are not acquainted with

Bubo bubo nikolskii Zarudny.

The author described (*Orn. Jahrb.* 1905. p. 142) this form as being closely allied to *B. b. turcomana*, but smaller, and having a smaller area on the chest covered with bold markings, which merge almost without transition into the very narrow shaft-lines on the lower breast, while the markings on the abdomen are finer and the upperside is more rusty. Mr. Zarudny had a pair from Arabistan (Chusistan) in West Persia.

Bubo bubo sibirica (Schlegel & Susemihl).

"*Strix Sibirica* Lichtenstein" on plate 44 of "*Die Vögel Europas*" by Susemihl, with text by Schlegel and others (1843. No text, but the plate is evidently taken from the specimen marked *Strix sibirica* by Lichtenstein, in the Berlin Museum, from the "Ural").

This beautiful Eagle-Owl is easily recognisable by its much lighter coloration, the brownish yellow ground-colour being for the most part replaced by white. The feet are very heavily feathered, and the size is very large.

Instructive plates and very detailed descriptions of *B. b. sibirica* and *B. b. turcomana* are to be found in Menzbier's *Ornithologie du Turkestan*, 4 livr. (1894).

The Siberian Eagle-Owl breeds in Siberia, and appears partially to wander southwards in the winter.

Bubo bubo aharonii subsp. nov.

This is by far the most interesting form of Eagle-Owl known to us, inasmuch as it connects the northern Eagle-Owls with the *ascalaphus* group. It differs from the latter by the sides of the head and neck being distinctly barred with blackish; the feathers of the nape are differently marked. In the northern Eagle-Owls there are almost straight, wide black longitudinal stripes, while in *B. b. ascalaphus* there are roundish light cream-coloured lateral patches to the feathers which invade the black shaft-stripes, so that they become somewhat crenated; in *B. b. aharonii* these crenations are visible, but not so well developed as in *B. b. ascalaphus*, and they are much more distinct in the supposed male, less so in the supposed female. Altogether the supposed male is much more like an *ascalaphus*, the female more like a *bubo*. The underside of the wings is marked as in *ascalaphus*. In the supposed male the abdomen is marked as in *ascalaphus*, while in the other specimen it is more distinctly and more frequently cross-banded than in any *ascalaphus*, more as in *bubo*. The tarsus in *ascalaphus* is uniform, while it is barred in *bubo*. In the supposed female of the new form the tarsus is marked with narrow but distinct broad arrow-shaped cross-lines, while in the male there are merely indications of cross-markings. The two specimens are alike in size, the wings measuring 41—42 cm.

We have received one pair from Mr. Aharoni in Jerusalem. They were obtained on the Wadi Suenit, in the valley of the Jordan in Palestine, on April 5th or 6th, 1909. The supposed female (the type-specimen) is now in the Tring Museum, while the other one had to be returned to Jerusalem. The specimens were not sexed; but it would seem that the lighter, more *ascalaphus*-like specimen is a less heavy bird, its beak being somewhat slenderer, and therefore we think that it must be the male, the other the female, as the two are said to be a pair. We have named this most interesting form in honour of Mr. Aharoni, who is an enthusiastic naturalist.

Bubo bubo ascalaphus Sav.

The late Baron von Erlanger separated two subspecies—a northern, darker, and a more southern, lighter one, in Tunisia; while he also kept separate the Egyptian form as a third subspecies. We are at present unable to decide finally whether the separation of these three races is possible or not, but we hope to discuss this question in full. We obtained a dark form near El Kantara in Algeria, and it seems as if more southern examples are lighter.

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No. 2.

CATALOGUE OF THE *ARCTIANAE* IN THE TRING MUSEUM, WITH NOTES AND DESCRIPTIONS OF NEW SPECIES.

II.—Continued from Page 85.

BY THE HON. WALTER ROTHSCILD, PH.D.

813. *Phragmatobia kindermanni kindermanni* (Stand.).

29 ♂♂ The defile of Turgan Aksu, Tian-shan, July 22—August 16, 1905;
75 ♂♂ The defile of Little Kizil-su, Tian-shan, July 10—14, 1905 (Kutsenko).

813A. *P. kindermanni pomona* (Staud.).

5 ♂♂, 2 ♀♀ Kuldja (Groum-Grscmaillo coll.).

813B. *P. kindermanni ferghana* (Stand.).

1 ♂ Alexander Mts. (from R. Tancrè).

813C. *P. kindermanni issyka* (Staud.).

6 ♂♂, 12 ♀♀ Issyk-Kul (3 ♂♂, 7 ♀♀ from Tancrè; 2 ♂♂, 2 ♀♀ Groum-Grscmaillo coll.; 1 ♂, 3 ♀♀ ?).

814. *P. brucei* (H. Edw.).

1 ♂ Bullion Peak, South Park, Colorado, U.S.A., 14,200 ft., August 23, 1901 (Osler).

815. *P. glaphyra glaphyra* (Ev.).

1 ♂ ? (Groum-Grscmaillo coll.).

815A. *P. glaphyra manni* (Alph.).

1 ♂ Alai Mts., 2 ♂♂, 2 ♀♀ Borokoro, 1 ♂, 1 ♀ Issyk-Kul (Groum-Grscmaillo coll.); 7 ♂♂, 4 ♀♀ Issyk-Kul (Tancrè); 2 ♂♂ Naryn Kol, June 5, 1901; 1 ♂ Kuldja; 1 ♂ ?; 10 ♂♂ The defile of Turgan Aksu, Tian-shan, July 22—August 16, 1905; 11 ♂♂, 1 ♀ The defile of Little Kizil-su, Tian-shan, July 10—14, 1905 (Kutsenko).

816. *P. y-albula* (Oberth.).

3 ♂♂ Ta-Tsien-Lu, West China, 8300 ft., June 1890 (A. E. Pratt) (one with red, two with yellow hindwings); 2 ♂♂ West China (yellow hindwings).

817. *P. trigona* (Leech).

4 ♂♂ North of Ta-Tsien-Lu.

818. *P. cervina* (Fall.).

2 ♂♂, 2 ♀♀? (Felder coll.); 2 ♂♂, 3 ♀♀? 1 ♀ Monte Rosa; 2 ♂♂, 2 ♀♀ Zermatt; 2 ♂♂, 2 ♀♀ "Helvetia" (Groum-Grschmailo coll.); 1 ♂, 1 ♀ Simplon (M. Bartel coll.).

819. *P. beani* (Neum.).

1 ♂, 1 ♀, locality uncertain.

820. *P. casta* (Esp.).

5 ♂♂, 3 ♀♀? (Felder coll., one labelled Am. Bor. and one labelled Illinois!); 4 ♂♂, 5 ♀♀? (2 from Meyer coll.); 1 ♂ Digne, Basses Alpes, June 18, 1908 (W. Rothschild and K. Jordan); 1 ♂, 1 ♀ Zara; 1 ♂, 1 ♀ Prag; 1 ♂, 1 ♀ Buda-Pesth; 1 ♀ Helvetia (Groum-Grschmailo coll.); 1 ♀ Germany; 1 ♂, 2 ♀♀ Vienna (1 ♀ M. Bartel coll.); 1 ♀ Modan (M. Bartel coll.) (yellow hindwings); 1 ♂ Uralsk, July 18, 1906 (M. Bartel coll.).

821. *P. oberthueri* spec. nov.

♂. Pectus, head, thorax, and abdomen very rough and woolly, greenish yellow mixed with brown-black, darker on abdomen; antennae rufous brown.—Forewing brown-black powdered with orange-buff, an orange-buff patch in cell and two less distinct above vein 1, a postmedian and a subterminal transverse band orange-buff, fringe mixed brown and orange-buff.—Hindwing orange-buff, a broad marginal band of brown-black from termen to tornus, inner area brown-black clothed thickly with orange-buff hairs, fringe orange-buff.

Length of forewing: 15 mm.

Hab. Kuku-nor, Thibet.

2 ♂♂.

822. *P. leopardina* (Mén.).

2 ♂♂ Kuku-Nor (Taneré); 1 ♂ Kaithen, Siniu Mts. (Taucré).

823. *P. puella* (Stand.).

1 ♂ Artcha-Bachi, Northern Alai Mts., June 20, 1908.

824. *P. flavia flavia* (Fuessl.).

4 ♂♂, 5 ♀♀?: 2 ♂♂, 2 ♀♀? (Felder coll.); 1 ♂ "Switzerland"; 5 ♂♂, 5 ♀♀ "Helvetia" (Groum-Grschmailo coll.); 3 ♂♂, 3 ♀♀ Sustenpass, Unterwalden, Switzerland, June; 6 ♂♂, 5 ♀♀ Campfer, 5 ♂♂ Silvaplana, Engadine, July 1901 (Walter Rothschild); 24 ♂♂, 9 ♀♀ Silvaplana, Engadine, July and August 1901—1903 (Osirnig); 1 ♂, 1 ♀ Switzerland (Meyer coll.); 1 ♀ Gedmen Valley, Bernese Oberland (black on forewings reduced to about one-third the normal amount); 1 ♀ Stelvio (black spots much enlarged on hindwings, occupying quite half the wings); 2 ♂♂ Silvaplana, Engadine, July 23 and 26, 1903 (black on forewing reduced to half normal amount); 1 ♀ Silvaplana, Engadine, July 26, 1903 (forewings almost entirely black) (Osirnig); 2 larvae, Albula Pass, Canton Grisons, Switzerland, June 1901; 2 ♂♂ Uliawe; 1 ♂ Urga, Mongolia; 1 ♂ Altai.

824A. *P. flavia uralensis* Heyne.

1 ♂, 2 ♀♀ Ural Mountains, July 22, 15, 20, 1908.

This form has the white lines on the forewings much narrower than *flavia*, and the hindwings are orange buff in both sexes.

825. *P. fuliginosa fuliginosa* (Linn.).

1 ♂ Nottingham, 1901 (Hendersay); 1 ♂ Wicken Fen, Cambridgeshire, June 17, 1896; 4 ♂♂ Wicken Fen, Cambridgeshire (N. Charles Rothschild); 1 ♂, 1 ♀ Tring, Hertfordshire, May 17, 1908, and June 9, 1904 (A. T. Goodson); 6 ♂♂, 2 ♀♀ Great Britain; 2 ♂♂, 1 ♀?, 1 ♂ Munich, Bavaria (Buechecker coll.); 6 ♂♂, 11 ♀♀ Crimmitschau, Saxony, April 17—July 25, 1898 (Th. Wagner); 1 ♂, 1 ♀ Ostnau, Saxony, August 3, 1896; 3 ♂♂, 2 ♀♀ Liebenau, Bohemia, July 1908 (Emil Gradl); 3 ♂♂, 4 ♀♀? (Austria?) (Felder coll.); 6 ♂♂ Csehtelek, Bihar Comitat, Hungary, July—August 1907; 2 ♂♂ Marmarosszuget, Transylvania, 1901 (Farkas Sandor); 13 ♂♂ Herkulesbad, Hungary (4, July 2—22, 1907, Walter Rothschild and Ernst Hartert; 9, Herkulesbad, July 28—September 2, 1907, J. Aszner); 2 ♂♂ Uralsk, July 1905 (M. Bartel); 1 ♂ Podolia, 2 ♂♂, 2 ♀♀ Zara, 1 ♂ Stavropol Government, 1 ♂ Chasurówka, 1 ♂? (Groum-Grschmailo coll.); 1 ♂ San Ildefonso, Segovia, Spain, June—July 1905 (M. de la Escalera); 25 ♂♂, 6 ♀♀ Luchon, Pyrenees, July—August 1905—1906 (Walter Rothschild & Ernst Hartert); 3 ♂♂, 2 ♀♀ Canterets, Pyrenees, July 1905 (Walter Rothschild and Ernst Hartert); 5 larvae.

825A. *P. fuliginosa borealis* Stand.

7 ♂♂, 1 ♀ Great Britain (Scotland); 6 ♂♂, 1 ♀ Carlisle, 1895; 3 ♂♂, 1 ♀ various Russian localities (Groum-Grschmailo coll.); 1 ♂, 1 ♀ Ronnock, June 1907 (E. Gibbs); 2 larvae and 2 emerged cocoons.

825B. *P. fuliginosa lurida* nom. nov.

I have given the subspecific name of *lurida* to what was named *P. fuliginosa ferrida* by Dr. Staudinger in the second edition of his *Catalogue of Palaearctic Lepidoptera*, because Walker had previously (1855) used the name *ferrida* for another quite different species of *Phragmatobia* from Central America.

1 ♂ Antibes, French Riviera, April 11, 1904 (Walter Rothschild); 2 ♂♂, 1 ♀ Entrevaux, Department Var, France, July 1903 (H. Powell); 1 ♂, 1 ♀ Ferghana, 1 ♂ Chasurówka (Groum-Grschmailo coll.); 1 ♀ Hyères (H. Powell); 2 ♂♂ Bordighera, Italian Riviera, March 23—29, 1899 (Walter Rothschild); 1 ♀ Sicily (Groum-Grschmailo coll.); 1 ♂ Taormina, Sicily, June 3—9, 1907 (O. Neumann); 2 larvae (Groum-Grschmailo coll.).

825c. *P. fuliginosa pulverulenta* Alph.

3 ♂♂ East side of Lake Issyk-kul, June 19—24, 1905 (Kutsenko); 10 ♂♂ Bir-Basch, South side of Lake Issyk-kul, July 10—24, 1902 (Kutsenko); 4 ♂♂ Issyk-kul (Kutsenko); 5 ♂♂ The defile of Turgan-Aksu, August 12—19, and 2 ♂♂ The defile of Little Kizil-su, July 21, and 1 ♂ Kaschka-ssu, July 11, 1905, Tian-shan (Kutsenko); 3 ♂♂, 1 ♀ Seffr-Kulu, Afghanistan; 1 ♂ Gon-Ishan, 1891 (Felder coll.); 1, 1 ♀ Jaldus.

825d. *P. fuliginosa pallida* subsp. nov.

♂ ♀. Differs from all other forms of *fuliginosa* in being pale brownish buff, washed more or less with pale rose-colour.

Hab. Kuku-nor, Thibet, 3 ♂♂; Ganssu, West China, 4 ♂♂, 1 ♀ (Groum-Grschmailo coll.).

825e. *P. fuliginosa japonica* subsp. nov.

♀. Forewing much deeper and duller in colour than in *fuliginosa fuliginosa*, being greyish chocolate.—Hindwing dull rose with a broad submarginal black band.

Hab. Yokohama, July 1889 (Dr. Fritze).

1 ♀.

825f. *P. fuliginosa rubricosa* Harr.

1 ♀ ?; 1 ♂, 1 ♀ Florida; 1 ♂ Canada; 2 ♂♂ Durango, Colorado (J. Osler); 2 ♂♂ Larima County, Colorado, 5000 ft., June—July 1891; 1 ♂ Rhode Island (Meyer coll.); 1 ♀ Denver, Colorado, May 29, 1900 (J. Osler); 2 larvae.

826. *Ardices curvata curvata* (Donov.).

3 ♂♂, 2 ♀♀ New Holland (Felder coll.); 6 ♂♂ Brisbane District; 3 ♂♂ Queensland; 1 ♂ ?; 2 ♂♂, 2 ♀♀ Mackay, Queensland; 1 ♂ Queensland, Australia (Fruhstorfer coll.); 1 ♀ Paramatta, New South Wales (Ph. Schrader).

826A. *A. curvata vicens* (Bntl.).

2 ♂♂ Tasmania (Felder coll.); 1 ♂ Ulverstone, Tasmania (A. Simpson).

827. *A. glattignyi* (Le Guill.).

6 ♂♂, 2 ♀♀ Queensland (Felder coll.); 3 ♂♂ Lottah, 3 ♂♂, 2 ♀♀ Launceston, Tasmania (A. Simpson); 2 ♂♂, 1 ♀ Melbourne (Felder coll.); 1 ♂, 3 ♀♀ Tasmania; 3 ♂♂, 1 ♀ Parkside, South Australia; 1 ♂, 1 ♀ Queensland; 1 ♂, 2 ♀♀ Marraville, Victoria (Anderson); 1 ♂ Victoria (Barnard coll.); 1 ♂ ?; 1 ? (A. Simpson); 1 ♀ Tasmania, 1886.

828. *Maenas maculifascia maculifascia* (Walk.).

4 ♂♂ Mount Talang, 1 ♂ Batang Proepoe, Padang Bovenlanden, West Sumatra; 2 ♂♂ Java; 4 ♂♂, 1 ♀ West Java; 1 ♂ Mount Gede, West Java, August 1898 (H. Fruhstorfer); 2 ♂♂ South Java, 1896 (H. Fruhstorfer); 1 ♂ Mount Arjuno, Java (W. Doherty); 1 ♀ Dyampang Koelon, S.W. Preanger, Java (Kannegieter); 1 ♀ Ramboekers, Tondano (Weigall); 1 ♂ ?; 1 ♂ Pulo Engano (W. Doherty); 3 ♀♀ Lahago, Nias; 2 ♂♂ Pura, October 1891 (W. Doherty); 4 ♂♂ Dammer Island, July—December 1898 (H. Kühn); 3 ♂♂ Adonara, November 1891 (W. Doherty); 1 ♂ Padang Rengas, Malay Peninsula, 1896—1898 (Curtis); 1 ♂ Penang; 2 ♂♂ ?; 1 ♂ North Luzon, 5000—6000 ft., and 1 ♂ Samar, June—July 1896 (J. Whitehead).

828A. *M. maculifascia roseata* subsp. nov.

♂. Forewing more heavily marked with brown.—Hindwing, inner area washed with pale crimson. Abdomen pale crimson.

♀ has abdomen pale crimson.

Hab. 2 ♂♂ Oinainissa, Timor, December 1891, and 1 ♀ Dili, Timor, May 1892 (W. Doherty); 1 ♂ Kajeli, Burn, March 1897 (W. Doherty); 2 ♂♂, 1 ♀ Moluccas; 1 ♂ ? (Felder coll.); 1 ♂ Amboina (Felder coll.); 1 ♂, 1 ♀ Mackay, Queensland; 3 ♂♂ Queensland; 1 ♀ Kuranda, Cairns, Queensland (F. P. Dodd); 1 ♂ ?.

829. *M. malayensis* Hmps.

7 ♂♂, 6 ♀♀ Sapit and Sambalun, Lombok, 2000—5000 ft., April 1896 (H. Fruhstorfer).

830. *M. ypsilon* spec. nov.

♂. Pectus crimson; legs and antennae brownish grey; head creamy white; collar and tegulae pale crimson; thorax and patagia creamy white; first two segments of abdomen creamy white, rest of abdomen pale dull crimson.—Forewing creamy white, a subbasal transverse band of four hair-brown spots, a convex elbowed median band of hair-brown patches and a similar postmedian one which joins the median one at vein 5, forming a large discal Y.—Hindwing cream-white.

Length of forewing: 15 mm.

Hab. Mount Gadé, West Java, 4000 ft., 1896 (H. Fruhstorfer). 1 ♂; Penang, 1897 (Curtis), 1 ♂.

831. *M.* species ?

2 ♂♂, 1 ♀ Mpuapua, German East Africa (Dr. Baxter). These three specimens have much longer wings than *M. ramosa*, and the dark rami of the forewings are different, but the 2 ♂♂ are a mass of grease and the ♀ very rubbed, so I shall wait for fresh material before describing this evidently new species.

832. *M. punctistrigata* B. Baker.

2 ♂♂ Angabunga River, affluent of St. Joseph's River, from 6000 ft. upwards, November 1904—February 1905; 9 ♂♂, 2 ♀♀ Biagi, Mambari River, 5000 ft., March 1906; 10 ♂♂ Upper Aroa River, March 1903, British New Guinea (A. S. Meek).

833. *M. nacula* (Stoll).

2 ♂♂ Amshaw, Cape Colony (Miss Barrett); 8 ♂♂, 1 ♀ Knysna, Cape Colony (Felder coll.).

834. *M. arborifera* Butl.

1 ♂ Weenen, Natal, October 1893; 1 ♂ Beaufort West, Cape Colony (Lavers); 1 ♀ Natal; 1 ♀ ?; 1 ♂ Monkeybay, Lake Nyassa, July 1896 (Dr. Percy Rendall); 1 ♂ Transkei, Cape Colony (Miss Barrett); 1 ♂ Congo; 1 ♂ Loanda (Welwitsch, Felder coll.).

835. *M. ramosa* Hmps. n.

2 ♂♂, 1 ♀ Dar-es-Salaam, German East Africa; 1 ♂ Fort Johnston, Nyassaland, January—February 1896 (Dr. Percy Rendall); 1 ♀ Kilwa, German East Africa; 1 ♂ Ungu, Quanza River, May 12, 1901 (H. Pemberton); 1 ♂ Ibo, Mozambique (tide Rolle); 1 ♂ Loanda (Welwitsch, Felder coll.).

836. *M. surgens* (Walk.).

1 ♂ Huancabamba, Cerro de Pasco, 6000—10,000 ft., Peru (Böttger).

837. *M. flavata* Hmps. n.

1 ♂ Cuzco, Peru, February 1901.

838. *M. tenuis* (Berg).

15 ♂♂, 8 ♀♀ Fonte Boa; 1 ♂ Calama, Rio Madeira (W. Hoffmanns); 1 ♂ La Union, Huacamayo; 1 ♂ Santo Antonio do Javary; 3 ♂♂, 4 ♀♀ Codajas; 1 ♂ on board steamer between Tefé and Fonte Boa, June 1906 (S. M. Klages).

839. *M. laboulbeni* (Bar).

28 ♂♂, 5 ♀♀ St. Laurent de Maroni; 1 ♂ St. Jean de Maroni, French Guiana, July—August 1904 (E. Le Moult); 1 ♂ Amazon; 1 ♀ French Guiana (E. Le Moult).

840. *M. azollae* (Berg).

2 ♀♀ Minas Geraes.

841. *Maenas affinis* spec. nov.

♀. Allied to *M. burmeisteri*, and quite as large; pectus, legs, antennae, and head sooty black; tegulae sooty black margined with orange anteriorly; thorax and patagia hair-brown mixed with orange hairs; base of abdomen orange, anal segment and tuft orange buff, rest of abdomen sooty black with orange segmental margins.—Forewing deep brown with scattered buff hairs, a pale brown postmedian, transverse band having a central darker line, inner margin pale dull orange towards base.—Hindwing brown, paler than forewing, discocellulars dark.

Length of forewing: 38 mm.

Hab. Petropolis.

1 ♀.

842. *M. burmeisteri* (Berg).

1 ♂, 1 ♀ "Brazil"; 1 ♂, 1 ♀, 2 cocoons.

843. *M. bilinea* (Schaus).

3 ♂♂ Alto Paragnay, August 1904 (J. Steinbach); 1 ♀ Castro, Parana.

844. *M. juruana* (Bntl.).

1 ♂, 1 ♀ Codajas; 10 ♂♂, 9 ♀♀ Fonte Boa; 2 ♀♀ Calama; 1 ♀ Codajas; 1 ♀ Santo Antonio do Javary; 1 ♂ on board steamer between Manicupuri and Tefé, April 1906 (S. M. Klages).

845. *M. breveti breveti* (Oberth.).

1 ♂ Biskra, South Algeria, March 11, 1909 (Walter Rothschild, Ernst Hartert, and C. Hilgert).

845A. *M. breveti occidentalis* subsp. nov.

♂. Differs from *b. breveti* in the pectus being brown, not buffish pink; palpi black with only the last joint pink, not wholly pink; head and antennae sooty brown, not rufous; thorax sooty brown, not greyish rufous.—Forewing deeper rufous brown, not chocolate, the black spots fewer and less distinct, and the pale margins to these spots darker and much less distinct.—Hindwing salmon-colour, not rosy crimson. Some specimens have the forewings strongly suffused with sooty grey.

Hab. Mazagan, Morocco, December 1902 (W. Riggensbach).

26 ♂♂.

846. *Pseudalus leos leos* (Druce).

3 ♀♀ Fonte Boa; 1 ♂ Tumatumari; 1 ♂ St. Laurent de Maroni.

846A. *P. leos occidentalis* Rothsch.

1 ♂ Tinguri; 1 ♂ La Oroya.

847. *P. aurantiacus* Rothsch.

6 ♂♂, 1 ♀ Aroewarwa Creek.

848. *P. strigatus* Rothsch.

1 ♀ La Oroya; 5 ♂♂ Tinguri.

849. *P. limonia* Schaus.

8 ♂♂ São Paulo; 1 ♂ Aqua Snja, Minas Geraës, October 1906 (G. A. Baer).

850. *Diacrisia aeruginosa* (Feld.).

1 ♂, 2 ♀♀ Bogotá (Lindig ex Felder coll.—type ♀); 33 ♂♂, 18 ♀♀ Bogotá (18 ♂♂, 11 ♀♀, Child); 11 ♂♂, 1 ♀ Bogotá, in and around the town, December 1898; 1 ♂ 1 ♀ Colombia.

851. *D. irrorata* spec. nov.

♂. Pectus brown; head and tegulae dull green; antennae rufous; thorax and base of patagia chocolate-brown, rest of patagia dull green; two basal segments of abdomen bright orange, rest dull buffish green.—Forewing pale green closely irrorated with chocolate-brown, basal half of wing with a X of chocolate-brown, but so densely irrorated with this colour besides that at first sight it appears almost entirely brown, a discocellular large chocolate stigma, and beyond a zigzag chocolate transverse band.—Hindwing semihyaline greenish white.

Length of forewing: 16 mm.

Hab. Huancabamba, Peru (E. Böttger).

1 ♂.

852. *D. underwoodi* spec. nov.

♀. Pectus green, outside of legs dull brick-red; palpi chocolate-brown; head and thorax apple-green; abdomen brick-red.—Forewing apple-green, basal two-thirds with various irregular more or less coalescent chocolate patches, a postmedian transverse chocolate band, and beyond it a transverse row of chocolate dots.—Hindwing pale apple-green, a sooty brown patch at tornus.

Length of forewing: about 23 mm.

Hab. Costa Rica (Underwood).

1 ♀.

853. *D. ockendeni* spec. nov.

♀. Pectus and legs and antennae turquoise-blue; frons buff, rest of head and thorax greenish turquoise-blue; abdomen bright turquoise-blue.—Forewing veronese green, costa and outer margin very convex.—Hindwing semihyaline whitish green-blue.

Length of forewing: 24 mm.

Hab. Limbani, Carabaya, S.E. Peru (Ockenden).

1 ♀.

854. *D. aldaba* Dogn.

3 ♂♂, 1 ♀ Quito, Ecuador (W. Goodfellow).

855. *D. viridis* (Druce).

20 ♂♂, 1 ♀ Santo Domingo; 1 ♂ Tinguri.

856. *D. nigrifrons* (Walk.).

2 ♂♂ Khasia Hills, Assam, April–August 1886 (native collectors); 1 ♂, 1 ♀ Darjeeling, Sikkim, April 1889 (J. G. Pilcher); 2 ♂♂ Sikkim, 4000–7000 ft. (Otto Möller, Elwes coll.); 2 ♂♂ Sikkim (H. J. Elwes); 1 ♂ Darjeeling (F. Möller); 1 ♂ Shillong, Assam, September 1893.

857. *D. rhodophila* (Walk.).

6 ♂♂, 1 ♀ Khasia Hills, Assam, August 1894–September 1895 (native collectors); 1 ♂ Khasis (native collectors, H. J. Elwes coll.); 2 ♂♂ Naga Hills, 5000–8000 ft., Assam, July–August 1889 (W. Doherty) (H. J. Elwes coll.); 1 ♂ Chamba, July 1891; 2 ♂♂ Sikkim, May 1889 (J. G. Pilcher); 5 ♂♂, 2 ♀♀ Sikkim, May 1888–1889 (Otto Möller) (H. J. Elwes coll.); 2 ♂♂, 1 ♂ Mao, Manipur, 5000–7000 ft., North Burmah, August 1889 (W. Doherty) (H. J. Elwes coll.); 1 ♂? (H. J. Elwes coll.); 2 ♂♂ Shillong, Assam, May 1893; 1 ♂? (Felder coll.); 1 ♂ Darjeeling, Sikkim (Dr. Lidderdale); 2 ♂♂, 1 ♀ Darjeeling (F. Möller); 1 ♂ Nanchuen, South Szechuen, West China, July–September; 1 ♂ Upper Yang-tse-kiang, West China; 1 ♀ Ichang, West China; 1 ♂ Pn-tsu-fong, 9820 ft., West China, June–July 1890 (native collectors).

858. *D. rhodophilides* Hmps.

2 ♂♂ Mount Arizan, Kagi District, July 1908; 1 ♂ Shushn-gai to Rankei-San, Nancho District, March 4–20, 1908, Central Formosa.

859. *D. costimacula* Leech.

1 ♂ Yokohama, June 10, 1897 (Dr. Lambert) : 1 ♂ ? (Manley).

860. *D. neglecta* spec. nov.

♂. Pectus white; palpi grey, black tips; antennae dark grey; head and thorax white; basal three segments and last segment of abdomen white, rest dull yellow, with a row of half-concealed black spots on each side.—Forewing white.—Hindwing white.

♀. Similar, but larger; the lateral black spots on abdomen very large, the anal tuft very large, and a dorsal median row of black dots; a slight dark-grey stigma at apex of cell on hindwing. Some males show this stigma also, and a few indistinct grey spots on disc of forewing and tornus of hindwing.

Length of forewing: ♂ 19 mm.; ♀ 22 mm.

Hab. 1 ♂, 1 ♀ Sikkim, May 1889; 1 ♂, 1 ♀ Sikkim, May 10, 1889 (J. G. Pilcher); 2 ♂♂ Naga Hills, 5000—7000 ft., Assam, August—September 1890 (W. Doherty, H. J. Elwes coll.); 1 ♂ Bernardmyo, Burmah, 5500—7000 ft., May 1890 (W. Doherty, H. J. Elwes coll.); 1 ♂ Sikkim, 1 ♂ Darjeeling, July 22, 1886 (H. J. Elwes); 1 ♀ Palni Hills, South India; 1 ♂ Rampur, South India, September 22, 1882 (Johnstone, H. J. Elwes coll.).

861. *D. burmanica* spec. nov.

♂. Pectus crimson; antennae brown; head white; collar and tegulae crimson; rest of thorax white; abdomen crimson.—Forewing white, a subbasal, antemedian and postmedian brown spot on costa, an antemedian transverse band of brown patches and a postmedian similar one but more sinuate: beyond this a brown dot on each side of vein 7, and on each side of vein 1 at tornus.—Hindwing white; a brown submarginal spot just beyond tornus.

Length of forewing: 18 mm.

Hab. Burmah.

1 ♂.

862. *D. multivittata multivittata* (Moore).

8 ♂♂, 16 ♀♀ Darjeeling (F. Möller; H. J. Elwes, August 1886; Dr. Lidderdale; Pilcher, April 1889; A. V. Knyvett, 7500 ft., May—June 1889); 5 ♂♂, 6 ♀♀ Sikkim (J. G. Pilcher, July 1889; Otto Möller, 1887); 1 ♀ Naga Hills, Assam, 3000 ft., September—October 1889 (W. Doherty, H. J. Elwes coll.).

862A. *D. multivittata assama* subsp. nov.

Differs from *m. multivittata* in the brown markings of the wings being broader, much darker and very distinct.

Hab. Khasis, Assam, March 1884—June 1886 (native collectors).

4 ♂♂, 1 ♀.

863. *D. indica* (Guén.).

5 ♂♂ Nilgiri Hills, South India (Hampson, Lindsay).

864. *D. flavifrons* spec. nov.

♀. Pectus grey; palpi black; head, collar, and tegulae yellow; antennae fuscous; patagia white; thorax yellow; abdomen yellow, a dorsal and two lateral rows of black spots.—Forewing, basal half of costa sooty brown, terminal half yellow (in some specimens also sooty), a discocellular sooty spot, rest of wing semihyaline creamy white.—Hindwing semihyaline creamy white, a sooty grey spot near termen, and two (sometimes three) at tornus.

Length of forewing: 15 mm.

Hab. 4 ♂♂ Shevaray Hills, India, 4100 ft.; 1 ♂ Coonoor, South India.

865. *D. lifuensis* spec. nov.

♂♀. Pectus crimson; antennae grey-brown; head and thorax white; abdomen crimson. Fore- and hindwing white.

Length of forewing: ♂ 17 mm.; ♀ 24 mm.

Hab. Lifu, Loyalty Islands.

3 ♂♂, 5 ♀♀.

866. *D. albescens* spec. nov.

♀. Legs black in front with a few white rings; pectus, head, and thorax pure white; antennae above white, below sooty; abdomen dark orange with a dorsal row of black dots, basal and anal segments white.—Fore- and hindwing pure white.

Length of forewing: 18 mm.

Hab. Ogrugn, Niger, West Africa.

867. *D. melanosoma* Hmps.

4 ♂♂ Sikkim (J. G. Pilcher, July 1889; A. V. Knyvett, April 1889; Otto Möller, 1889); 1 ♂ Bernardmyo, Burmah, 5500—7000 ft., May 1890 (W. Doherty, H. J. Elwes coll.); 1 ♂ Darjeeling (F. Möller); 1 ♀ Mao, Manipur, North Burmah, 5000—7000 ft., 1899, 1 ♀ Naga Hills, Assam, 5500—7500 ft., September—October 1889 (W. Doherty, J. H. Elwes coll.); 1 ♀ Subathu, June 1889.

868. *D. latipennis* (Stretch).

1 ♂, 1 ♀ North America.

869. *D. niveus* Ménétr.

15 ♂♂, 5 ♀♀ Japan (4 ♂♂, 3 ♀♀ Felder coll.): 2 ♂♂ Tesio, Hakkaido, Japan, July 1901; 3 ♂♂, 2 ♀♀ Yokohama, Japan, July—September 1889 (Dr. Fritze); 2 ♂♂ Yokohama, April—August 1898; 1 ♂ Hakone, Japan, August 1886, 1 ♂ Gensan, Corea, July 1887 (J. H. Leech); 4 ♂♂ Tsu-sima Island, Japan, July—November 1891; 1 ♂ Ta-Chien-lu, West China; 2 ♂♂, 2 ♀♀ Amur (Groum-Grschmailo coll.); 2 ♂♂, 2 ♀♀?; 1 ♂? (H. J. Elwes coll.); 2 ♂♂, 1 ♀ Su-chan, South Ussuri District, near Nachodka Bay.

870. *D. echo* spec. nov.

♂. Pectus fuscous grey, edged crimson; legs white, fore-coxae crimson-scarlet; palpi fuscous, head and thorax white; antennae white above, fuscous below; abdomen white with blackish rings and two lateral rows of black spots on each

side.—Forewing white, three black dots on costa, numerous minute black twin dots on veins.—Hindwing white, a greyish black stigma and a grey dot near tornus.

♀. Similar, but fore-coxae orange; antennae black.—Forewing with five black spots on costa; no twin dots, but one black dot on median vein, one on each side of vein 6, and two above and one below vein 1; a marginal row of black dots.—Hindwing with large black stigma and five or six submarginal spots. Abdomen has basal segment white and anal segment half black half white, rest orange with broad transverse black bands.

Length of forewing: ♂, 24 mm.; ♀, 30 mm.

Hab. ? (labelled Asia! ex Meyer coll.).

871. **D. purum** (Leech).

18 ♂♂, 3 ♀♀ West China.

872A. **D. robustum hainana** subspec. nov.

These Hainan specimens appear considerably smaller than typical West Chinese examples, and have crimson, not orange, abdomens.

Hab. 3 ♂♂, 3 ♀♀ Chengmai, Hainan, July 1902; 1 ♂ Hainan.

872B. **D. robustum tsingtauana** subspec. nov.

Differs from *r. robustum* in being much smaller and almost pure white, with a very brilliant crimson abdomen.

Hab. Tsingtau, N.E. China.

872c. **D. robustum** subsp.

1 ♀ Amur (H. J. Elwes coll.).

873. **D. virginica** (Fabr.).

3 ♂♂, 2 ♀♀ Canada; 8 ♂♂ Denver, Colorado (E. J. Osler); 2 ♂♂ Halifax, Nova Scotia; 5 ♂♂, 1 ♀ Texas; 7 ♂♂ Larima, Colorado, 5000 ft., July 1891; 3 ♂♂, 2 ♀♀?; 2 ♂♂ Kaslo, British Columbia; 4 ♂♂, 6 ♀♀ Iowa, August 1898; 1 ♂, 2 ♀♀ North America; 1 ♂ Wisconsin, North America; 1 ♂, 2 ♀♀ Montreal to Quebec (Grapes); 4 ♀♀ Rhode Island (Felder coll.); 1 ♂ Florida; 1 ♂ North America, 1 ♀ New York, 1 ♀ New Hampshire (Meyer coll.); 1 ♀ Monacknock, New Hampshire (F. Birch); 1 ♂, bred from a cocoon collected in Vancouver, British Columbia; 1 ♂, 2 ♀♀, West Point, banks of the Hudson River, North America (Lant coll.); 1 ♂, 1 ♀ Keith Road, North Vancouver, British Columbia, May 1902 (N. Charles Rothschild); 1 ♂ Long Island; 1 ♂ New Westminster, British Columbia (A. D. Jones); 2 larvae.

874. **D. punctaria** (Stoll).

1 ♂ Tokio, Japan, 1890, 1 ♂ Ishikishiri, Yezo, June 1890 (Dr. Fritze); 3 ♂♂, 1 ♀ Hakodate, Japan, June and July 1887 (native collectors); 17 ♂♂, 2 ♀♀ Japan; 4 ♂♂ Gensan, Corea, July 1887 (J. H. Leech coll.); 2 ♀♀ Japan (H. Pryor coll.); 1 ♀ Tsuruga, July 1887 (J. H. Leech coll.); Nagasaki, Japan, June 1886

(J. H. Leech coll.); 1 ♂, 2 ♀♀ Yokohama, Japan, April—July 1898; 1 ♂ Amur (Gronm-Grschmailo coll.); 1 ♂ Japan (H. Pryer); 1 ♂ Amur (H. J. Elwes coll.); 1 ♀ Tokio, 1890 (Dr. Fritze).

875. *D. erythrozona* (Koll.).

1 ♂ Kumaon, North-West India, September 1882 (J. G. Pilcher); 10 ♂♂ Dalhousie, India, May—July 1891; 1 ♂?; 2 ♂♂? (Felder coll.); 3 ♂♂ Kashmir Valley, 7000 ft., July 1903 (Colonel Ward); 1 ♀ Kulu District, North-West India; 1 ♂ Mussorie (S. Robson); 1 ♂ Dras, Kashmir, June 1887 (J. H. Leech coll.); 1 ♂, 1 ♀ Srinagar, Kashmir, 7000 ft. (Colonel Ward); 1 ♂ Chamba, August 1891 (H. J. Elwes coll.); 1 ♂ Kashmir, June 1882; 1 ♂ Jonamury, July 1882 (Johnstone) (H. J. Elwes coll.).

876. *D. erythrastis* (Meyr.).

2 ♂♂ North Queensland; 1 ♀ Cooktown, Queensland.

877. *D. euproctina* (Anriv.).

3 ♂♂ Weenan, Natal; 1 ♀ Batt, Benguella, S. Angola, November 29, 1905, 1 ♀ Angola (Dr. Amsorge); 1 ♀ Cunene, Angola, February 1, 1902 (Herbert Pemberton); 1 ♂ Mwapwa, German East Africa; 1 ♀ Kilwa, German East Africa, March 28, 1900 (Reimer).

878. *D. felderi* spec. nov.

♀. Pectus white; antennae fuscous; head and thorax white; abdomen scarlet, a dorsal line of large black spots, anal fringe white.—Forewing white, a subbasal and a pretornal black dot on vein 1, an antemedian and postmedian similar one on median vein.—Hindwing white, a brown stigma at end of cell.

Length of forewing: 19 mm.

Hab. Kotegurh, N. India (Stoliczka, ex Felder coll.).

1 ♀.

879. *D. urticae* (Esp.).

10 ♂♂, 8 ♀♀ Great Britain; 3 ♂♂, 1 ♀ Wicken Fen, Cambridgeshire (N. Charles Rothschild); 4 ♀♀? (Felder coll.); 1 ♂, 1 ♀ Germany (Buechecker coll.); 2 ♂♂, 4 ♀♀ Crimmitschau, May 1898 (Th. Wagner); 1 ♀ Wiesbaden; 1 ♀ Liebenau, Bohemia, 460 m., May 15, 1896 (Emil Grall); 3 ♀♀?; 1 ♂ Kronstadt, Transylvania; 1 ♀ Marmaroszuget, Transylvania (Farkas Sandor); 2 ♀♀ St. Petersburg (Gronm-Grschmailo coll.); 3 larvae (1 British).

880. *D. lubricipeda lubricipeda* (Linn.).

16 ♂♂, 7 ♀♀ Great Britain; 11 ♂♂, 6 ♀♀ Tring, Hertfordshire, June 1895—June 1908 (Arthur Goodson); 1 ♂ Rila Mill, Callington, Cornwall, June 5, 1905 (Dr. K. Jordan); 2 larvae; 8 ♂♂ Lichen, July 1905 and August 1906; 7 ♂♂, 4 ♀♀ Canterets, July 1905 and 1906, French Pyrenees (Walter Rothschild and Ernst Hartert); 4 ♂♂, 1 ♀ Liebenau, Bohemia, June and July 1907—1908 (Emil Grall); 1 ♂ Germany (Buechecker coll.); 1 ♂ Tarasp, Engadine, Switzerland, July 16, 1902 (Walter Rothschild & Ernst Hartert); 4 ♂♂, 1 ♀? (Felder coll.);

2 ♂♂, 1 ♀ St. Petersburg, 1 ♂ Podolia (Groun-Grschmailo coll.); 5 ♂♂ Crim-mitschau, May 1896 (Th. Wagner); 2 ♀♀ Wiesbaden; 1 ♂ Entrevaux, Department of Var, France, August 1903 (H. Powell); 1 ♂ Kronstadt, Transylvania; 1 ♂ Sikeborg, Denmark, July 6, 1907; 1 ♂ Højelse, Denmark, June 15, 1903.

880A. *D. lubricipeda sangaiica* Walk.

10 ♂♂, 7 ♀♀ Japan; 2 ♂♂, 3 ♂♂ Yokohama, Japan, August 1896—July 1898; 1 ♂, 1 ♀ Japan (H. Pryer coll.); 3 ♂♂ Hokodate, Japan, June—July 1886—1887 (1 Andrews, 2 native collectors); 1 ♂ Asamayama; 1 ♂, 1 ♀ Yokohama, April 1889; 1 ♂, 2 ♀♀ Tokio, March 1890—May 1891, Japan (Dr. Fritze); 1 ♂, 1 ♀ Ta-tsien-lu, 1 ♀ Omei-shan, West China; 1 ♂ Amdo (Groun-Grschmailo coll.); 1 ♂ Japan (H. Pryer) (H. J. Elwes coll.).

881. *D. lewisi* (Butl.).

3 ♂♂ Yokohama, Japan.

882. *D. irregularis* spec. nov.

♂. Pectus grey; legs grey, coxae crimson; palpi grey, frons grey, rest of head white; antennae grey; tegulae white with large grey central patches; patagia grey with white margins; thorax grey; first segment of abdomen white, rest of abdomen crimson with broad black transverse bars.—Forewing white, basal fourth with several irregular partly joined grey spots, a broad irregular antemedian and a similar postmedian transverse grey band, an irregular marginal and submarginal band of grey spots.—Hindwing white, a large grey discocellular stigma and a broad submarginal grey band.

♀. Similar, but larger, abdomen pale rose and grey patches, and bands on forewing more irregular.

Length of forewing: ♂ 24 mm., ♀ 29 mm.

Hab. Ichang, West China.

1 ♂, 1 ♀.

883. *D. aspersa* (Mab.).

2 ♂♂, 9 ♀♀ Madagascar; 2 ♂♂ Sirabé to Imerina, Madagascar (Rev. Wills); 2 ♂♂, 1 ♀ Sirabé, North Betsileo, Madagascar; 1 ♂, 2 ♀♀ Morondava, Madagascar.

884. *D. spectabilis spectabilis* (Tausch).

3 ♂♂, 3 ♀♀ Ural'sk, August 1905 (M. Bartel); 4 ♂♂, 1 ♀?; 5 ♂♂, 1 ♀?; 2 larvae (Groun-Grschmailo coll., 2 labelled Sarepta).

884A. *D. spectabilis annellata* (Christ.).

1 ♂ The Defile of Tnrgan Aksu, Tian-shan, August 12, 1905 (Kutseuko); 4 ♂♂ Merv; 2 ♂♂ Aidere (Eyandt), 1 ♂ Province of Transcaspia (Groun-Grschmailo coll.); 1 ♂ Ganden, Aschabad, Kopet Dagh.

885. *D. unifascia* (Walk.).

2 ♀♀ Simla, N.W. India, May 1886; 2 ♂♂ Sabathu, Simla; 2 ♂♂, 4 ♀♀ Kulu District, N.W. India; 1 ♂ Kangra (Hocking), 1 ♀ Kussowlee, N.W. Himalayas (H. J. Elwes coll.); 4 ♂♂, 1 ♀ Kussowlee, August 1893; 1 ♀ Murree, India; 2 ♂♂ Dalhousie, India.

886. *D. chionea* Hmps.

4 ♀♀ Weenen, Natal, December 1893—February 1894; 1 ♂ Shilouvane, Transvaal, November 1902 (H. Junod); 1 ♂ Canhoca, Angola (Dr. Ansorge).

887. *D. metaleuca* Hmps.

3 ♂♂ Ogrugu, Niger, West Africa.

888. *D. scortillum* (Willgrn.).

1 ♂ Bopoto, Congo (Forfeit); 2 ♂♂ Warri, Niger, West Africa, September 1897 (Dr. Roth); 2 ♂♂ Agberri, Niger, August 1901 (Dr. Ansorge); 1 ♀ Transkei, Cape Colony (Miss Barrett); 1 ♂ Weenen, Natal, October 1894; 3 ♂♂ Mooi River, Natal.

The three Mooi River specimens are very large, and have bright yellow forewings, the Niger specimens are small and very white, but the Bopoto and Weenan examples are intermediate.

889. *D. curvilinea* (Walk.).

1 ♂ Lagos, West Africa; 1 ♂, 6 ♀♀ Ogrugu, Niger, West Africa; 3 ♂♂ Kampala, Uganda, dry season, January 1897 (Dr. Ansorge); 1 ♂, 2 ♀♀ Entebbe, Uganda, November 1902 (Capt. Ratray); 2 ♂♂ Entebbe, Uganda (F. J. Jackson); 1 ♂ Yakusu, Upper Congo (Keured Smith); 1 ♀ Stanley Pool to Lukolele, 1894 (Harrison); 2 ♀♀ Akassa, 1 ♂ Assaba, River Niger (Dr. Cross); 1 ♀ Wakibara, Unyoro, July 23, 1897 (Dr. Ansorge); 1 ♂ Lnebo, Kasai, River Congo (P. Landbeck); 1 ♂ Port Alice, Uganda, January 1897, dry season (Dr. Ansorge); 1 ♀ Gambaga, Gold Coast (Dr. Bury); 1 ♂ Masindi, July 28, 1897 (Dr. Ansorge); 1 ♀ Moyamba, Sierra Leone (D. Cator); 2 ♀♀ Bopoto, Upper Congo (K. Smith, and Stapleton).

890. *D. butti* spec. nov.

♂. Nearly allied to *curvilinea*, but owing to only having two transverse black lines at first sight resembles *eugraphica* (Walk.).

Pectus and head buff; antennae black; tegulae buff, edged with orange; thorax and patagia brownish buff; abdomen banded orange and black.—Forewing cream buff, antemedian and postmedian zigzag deep black transverse lines which join at middle of inner margin.—Hindwing deeper buff yellow, inner area a sooty stigma in cell.

Length of forewing: 18 mm.

Hab. Foot of Nieuwveld Mts., 5 miles N.W. of Beaufort West (Mrs. Butt).

6 ♂♂.

891. *D. buryi* spec. nov.

♂. Also allied to *curvilinea*.

Pectus orange; legs orange and black; palpi and head orange; antennae black; tegulae white, margined with deep orange; thorax white; abdomen orange; a dorsal and two lateral rows of black spots.—Forewing pure silky white; costa to termen orange; antemedian and postmedian transverse black lines, the latter interrupted at discocellulars, and a black dot on costa in between.—Hindwing semihyaline white, a tiny stigma in cell, and dot on inner area black.

♀. Similar, but much larger.

Length of forewing : ♂ 16 mm. ; ♀ 23 mm.

Hab. Gambaga, Gold Coast (Dr. Bury).

1 ♂, 1 ♀.

892. *D. affinis* spec. nov.

♂. Allied to *buryi* Rothsch., but at once distinguished by the absence of the orange costa and the transverse black lines. There are four black dots on costa and two between the median vein and vein 1, one-fourth from base.

Hab. Lokoja, Niger. Rainy season, October 1904 (D. Cator).

1 ♂.

893. *D. fuscovenata* Bartel.

2 ♂♂ Mpuapna (Dr. Baxter); 1 ♂ Kilwa, January 6, 1900, German East Africa (Reinier).

894. *D. aurantiaca* (Holl.).

4 ♂♂ Yakusu, Upper Congo, May—July 1900 (Kenred Smith); 1 ♀ Warri, May 2, 1896 (Dr. Roth); 1 ♀ Ogrugu, Niger; 1 ♀ Assaba, Lower Niger (Dr. Cross); 1 ♀ Sekondi, Gold Coast (N. T. Hamlyn); 1 ♀ Calabar (Lyon); 1 ♀ Luebo, Kassai River (P. Landbeck); 1 ♀ Lagos, West Africa; 1 ♀ Benin City, Niger, December 27, 1899 (Dr. Ansorge); 1 ♀ Wassan District, 45 miles inland from Sekondi, Gold Coast.

895. *D. bifurca* (Walk.).

1 ♂ Sierra Leone (Major Bambridge); 2 ♂♂ Wassan District, 45 miles inland from Sekondi, Gold Coast.

896. *D. rava* (Druce).

1 ♂ Ogowé River; 1 ♀ Lake Azingo, Gaboon, December 1907; 1 ♀ Lake Asebbe, Fernan-Vas, Gaboon, February 1908 (Dr. Ansorge).

897. *D. maculosa* (Stoll).

1 ♂, 1 ♀ Gambaga, Gold Coast (Dr. Ansorge); 1 ♂ Accra, Gold Coast; 1 ♀ Lagos, West Africa; 3 ♂♂, 5 ♀♀ Sierra Leone (Dr. Clements, 1892; Mitford, 1896; H. A. Thorne); 1 ♀ Lokoja, Niger, rainy season, October 1904; 1 ♂, 1 ♀ Moyamba, Sierra Leone, May 1904 (D. Cator); 11 ♂♂, 14 ♀♀ Warri, Niger Coast Protectorate, July 1896—December 1897 (Dr. Roth); 6 ♂♂, 3 ♀♀ Entebbe, Uganda (F. J. Jackson; Capt. Rattray, October 1900, and February—July 1902); 2 ♂♂ Mpuapna, German East Africa (Dr. Baxter); 3 ♂♂, 3 ♀♀ Ogrugu, Niger; 1 ♀ Budonga, Uganda, February 1902 (Captain Rattray); 1 ♂ Masiindi, December 27, 1897 (Dr. Ansorge); 5 ♂♂, 2 ♀♀ Kampala, Uganda (Dr. Ansorge, March 1897; Captain Rattray, January, February—October 1900); 1 ♀ Wassan District, 45 miles inland from Sekondi, Gold Coast; 1 ♂, 1 ♀ Canhoca, Angola, December 16, 1903 (Dr. Ansorge); 3 ♂♂ Yakusu, Upper Congo, June—August 1900 (Kenred Smith); 1 ♂, 1 ♀ Moyambe, Sierra Leone, June 1, 1902, May 2, 1903 (D. Cator); 2 ♀♀, 1 ♂ Kassai District, Congo Free State (Taymans); 1 ♀ Liberia; 2 ♀♀ Luebo, Kassai, October 1903 (P. Landbeck); 3 ♀♀ Bathurst; 3 ♂♂, 1 ♀ Loanda (Welwitsch ex coll. Felder); 1 ♀ Casamance, Senegambia (Laglaize); 2 ♂♂, 1 ♀

Bitye, Ja River, 2000 ft.; 1 ♀, 2 ♂♂ Ja River, Cameroons (G. L. Bates); 1 ♀ Ogowe River; 1 ♀ Bukaba, December 15, 1890; 2 ♂♂, 2 ♀♀ South Africa!; 1 ♀ Congo River (Holman Bentley); 1 ♂, 1 ♀ Anambara Creek, River Niger; 2 ♂♂, 1 ♀ Assaba, Niger (Dr. Cross); 2 ♀♀ 7 miles back of Sekondi, Gold Coast (W. Kirk); 1 ♀ Cape Coast Castle, Gold Coast; 1 ♀ Sekondi, Gold Coast (N. T. Hamlyn); 1 ♀ Bopoto, Congo (Forfeit); 1 ♀ Lagos, West Africa; 1 ♀ Benin City, Niger, January 4, 1900 (Dr. Ansorge); 1 ♂ Bopoto, Upper Congo, 1898 (Rev. Kenred Smith); 1 ♀ Degama, Niger (Dr. Ansorge); 1 ♂ Uganda (F. J. Jackson).

898. *D. pardalina* spec. nov.

♀. Allied to *maculosa*, but apparently quite distinct.

Pectus orange, with grey centre; legs black, with orange rings; palpi orange, with half second joint and third joint black; antennae black; head creamy buff, washed with grey; tegulae, basal half creamy buff, anterior half grey; thorax grey mixed with pale buff; patagia creamy buff, with grey centre; abdomen orange, with dorsal and lateral rows of large black patches.—Forewing creamy buff, with six irregular broad zigzag transverse bands bordered with very narrow black lines, and a marginal row of black-edged grey blotches.—Hindwing semihyaline buff, inner area buffy orange, a cellular stigma, three costal spots, a large patch between veins 5 and 8 and another from tornus to vein 4 brownish grey, a narrow submarginal line black.

♂. Similar, but hindwing whiter and unspotted.

Length of forewing: ♂ 16 mm.; ♀ 24 mm.

Hab. Victoria Nyanza region (Ukerewe, Masindi, etc.).

1 ♂, 5 ♀♀.

899. *D. schraderi* spec. nov.

♀. Also allied to *maculosa*.

Pectus orange; legs black, ringed with orange; head cream-colour; thorax cream-colour; tegulae and patagia with central black spot; abdomen yellow, with central, dorsal, and lateral rows of black spots.—Forewing cream-colour, with numerous small and large scattered grey patches edged with black.—Hindwing yellow with cellular stigma, subterminal spot, a spot at tornus, a patch between veins 2 and 4, and one on vein 6 brownish black.

♂. Similar, but hindwing almost spotless and semihyaline buff.

Length of forewing: ♂ 19 mm.; ♀ 22 mm.

Hab. Erythraea.

2 ♂♂, 2 ♀♀ (Type ♀ Salomona, November—December 1897 (Schrader)).

900. *D. mhondana* Bartel.

1 ♂ Mohoroni, Nandi, July 1903 (F. J. Jackson); 1 ♀ Entebbe, Uganda (F. J. Jackson); 2 ♂♂ Bihé, Angola (Edward Sanders); 4 ♀♀ Kampala, Uganda (Capt. Rattray, February—May 1900; Dr. Ansorge, January 25—30, 1897); 1 ♀ Lucalla, Angola (G. R. Murrain); 1 ♀ Yakusu, Upper Congo, July 1900 (Rev. Kenred Smith); 1 ♀ North Bailundu, Angola, September 1901 (Pemberton); 1 ♀ Masindi, May 19, 1897 (Dr. Ansorge); 1 ♀ Ukerewe, Victoria Nyanza; 1 ♀ Zomba, Upper Shiré River, 3000 ft. (Dr. Percy Rendall); 1 ♀ Pemba Island, 1904 (E. Morland); 1 ♀ Dar-es-Salaam, 1 ♀ Itumba, German East Africa; 1 ♀ Likoma,

Lake Nyassa, June 1, 1896 (Dutton); 1 ♀ Mombasa, January 5, 1899 (Dr. Ansorge); 1 ♀ Anambara Creek, Niger River, West Africa. This and the next species are quite distinct from *maculosa* and *pardalina*.

901. *D. investigatorum* (Karsch).

4 ♂♂ Kampala, Uganda, March—July 1900 (Capt. Rattray); 4 ♂♂ Entebbe, Uganda (Capt. Rattray, July 1900; F. J. Jackson); 1 ♂ Cunene, Angola, March 9, 1902 (H. Pemberton); 3 ♀♀ Mpuapua, German East Africa (Dr. Baxter); 1, Mruli, Unyoro, May 19, 1897 (Dr. Ansorge); 1 ♀ Canhoca (Dr. Ansorge); 2 ♂♂ Bihé, Angola (Edward Sanders); 1 ♂ Kilwa, 1 ♂ Dar-es-Salaam, German East Africa (Reimer); 1 ♂ Nairobi to Mount Kenia; 1 ♀ Ogragn, Niger; 1 ♂ Escarpment, Uganda Protectorate, 6000—9000 ft., March—April 1901, 1 ♀ ditto bred (W. Doherty); 2 ♀♀ ?; 1 ♀ Kurasini, Dar-es-Salaam, March 1907; 2 ♂♂ Nairobi, March 1905 (F. J. Jackson).

902. *D. rattrayi* spec. nov.

♀. Pectus orange; legs buff, blackish and orange on inside; head buff; antennae brown; tegulae buff with orange inner margins and a black dot on each; patagia buff with two black dots on each; thorax sooty grey with buff hairs intermixed; abdomen deep orange banded on each segment with a wide black band.—Forewing buffy yellow, marked all over with indistinct grey scattered spots.—Hindwing semihyaline buffish orange.

♂. Similar, but paler.

Length of forewing: ♂ 19 mm.; ♀ 24 mm.

Hab. Entebbe, Uganda (♀, Type, Capt. Rattray, October 1900; F. J. Jackson).

1 ♂, 1 ♀.

903. *D. procera* (Swinhoe).

1 ♂ Mount Talang, Padaug Bovenlanden, West Sumatra; 1 ♀ Pulo Nias (Dr. Fehr); 1 ♀ Lahago, Nias.

904. *D. subfascia* (Walk.).

6 ♂♂, 2 ♀♀ Ceylon (1 ♂ Green, December 1893), 2 ♂♂ Diyatalawa Camp, Ceylon, 4200 ft., October—December 1901 (Findlay); 6 ♂♂, 1 ♀ Pundaloya, Ceylon, June 1897—October 1898; 2 ♂♂, 4 ♀♀ Ceylon (Felder coll.); 1 ♂ Ceylon (H. J. Elwes coll.).

905. *D. melanostigma* (Ersch.).

1 ♂ ? (Felder coll.); 1 ♂ Sikkim (Otto Möller); 3 ♂♂ Naga Hills, Assam, 4500—7000 ft., September—October 1889 (W. Doherty) (H. J. Elwes coll.).

906. *D. punctata* (Moore).

1 ♂ Belgaum, October 1896; 2 ♂♂ Penungah, N.E. Borneo, December 29, 1893; 1 ♂, 1 ♀ ? (♂ ex Felder coll.); 1 ♂ Java; 1 ♂, 1 ♀ Buitenzorg, Java (♂ Bogor; ♀ Felder coll.); 1 ♂ Bali (W. Doherty); 1 ♂ Engano, September 1890 (W. Doherty).

There are probably three if not four subspecies here, but the species is too variable to be able to decide without a much larger material.

907. *D. species*?

2 ♀♀ Ootacamund, Nilgiris.

These are very different from one another, and I cannot think they are *punctata*.

908. *D. fuscitincta* Hmps. n.

4 ♂♂ South Java, 1500 ft., 1891 (H. Fruhstorfer); 3 ♂♂ West Java, 1892; 1 ♂ Mount Arjuno, Java (W. Doherty); 1 ♂ Java; 1 ♂ Pengalengan, Preanger Residency, Java; 1 ♂ Britenzorg, Java, August 5, 1904; 1 ♀ Djember, Besoeki Residency, Java, 1300—2000 ft., 1891 (Möllinger).

909. *D. mona* (Swinhoe).

1 ♀ Malabar Hill, Bombay, September 25, 1898.

910. *D. testacea* (Walk.).

11 ♂♂, 1 ♀ Natal (10 ♂♂ A. J. Spiller; ♀ Felder coll.); 1 ♂ Howick, Natal, October 1891; 1 ♂, 1 ♀ Knysna, Cape Colony (♀ Felder coll.); 1 ♀ Transkei, Cape Colony (Miss Barrett); 1 ♂ Victoria, Natal, February 1867 (Felder coll.).

911. *D. species*.

This is a very distinct new species, but the single specimen is much rubbed, so I do not venture to describe it.

1 ♂ Batavia, Java, 1897 (H. Fruhstorfer).

912. *D. sparsipunctata* Hmps. n.

1 ♂ Madagascar; 1 ♀ Antanambé, Antongil Bay, Madagascar, March—April 1897 (A. Mocquerys).

913. *D. scioana scioana* (Oberth.).

7 ♂♂ Nairobi to Mount Kenia; 2 ♂♂, 1 ♀ Mamba, Kilimandjaro, March—October 1897; 1 ♂ Leikipia, British East Africa, June 1906 (H. J. Jackson); 1 ♂ Uganda (F. J. Jackson).

913A. *D. scioana intensa* subsp. nov.

♂. Generally less densely spotted than *scioana scioana*.

♀. Has forewing rufous brown instead of orange, and the hindwing cinnamon buff, not pale yellow.

Hab. Angola (Bihé, Chisamba, Bihé, Cambo Caquenje, Bihé, and Pedreira, Bihé (Pemberton, October 1901; Dr. Ansorge, October—November 1904)).

4 ♂♂, 1 ♀.

914. *D. obliquivitta* (Moore).

2 ♂♂ Mao, Manipur, 5000—7000 ft. (W. Doherty); 2 ♂♂ Darjeeling, 7500 ft., May—June 1889, and 1 ♂, 1 ♀ Sikkim (A. V. Knyvett) (H. J. Elwes coll.); 2 ♂♂, 1 ♀ Darjeeling, 2 ♂♂ Sikkim, March—July 1889 (J. G. Pilcher coll.); 1 ♂ Darjeeling (Dr. Lidderdale); 1 ♂ Bhutan; 2 ♀♀ Khasis, October 1894—April 1896 (native collectors); 1 ♂ Darjeeling (F. Möller).

915. *D. inconspicua* spec. nov.

♂. Pectus orange; palpi and antennae black; head dark buff; thorax buff; tegulae with large black dot, patagia with small black dot; abdomen pale orange, a central dorsal row of black spots.—Forewing creamy buff; a black spot on costa one-sixth from base; a black streak on costa reaching into cell, a similar streak beyond cell reaching from costa to vein 7; some irregular black striae between veins 8 and 4 near margin; a black dot below the costal one on vein 3; three minute ones, two above and one below vein 2; five black spots, three above and two below vein 1.—Hindwing buffy yellow with cellular brownish stigma.

Length of forewing: 17 mm.

Hab. Zomba, Upper Shiré River, 3000 ft., October—December 1905; Mikindani, January—May 1895; Kilwa, German East Africa, June 1900 (Reimer); Mpuapua, German East Africa: Canhoca, Angola (Dr. Ausorge).

5 ♂♂.

916. *D. lutea lutea* (Häfn.).

33 ♂♂, 24 ♀♀ Great Britain; 1 ♂ Niton, Isle of Wight, June 13, 1903; 1 ♂ Brighton, Sussex, May 25, 1898; 12 ♂♂, 13 ♀♀ Tring, Hertfordshire, May 1898—June 1906 (A. F. Goodson). The following are all aberrations: *intermedia*, *zatima*, and *deschangei*: 2 ♂♂ Great Britain; 2 ♂♂, 3 ♀♀ Pounds, Yorkshire (Tugwell); 2 ♂♂ Lincolnshire Coast, May 1898 (Raynor); 1 ♂, 1 ♀ Folkestone; 3 ♂♂, 8 ♀♀ Skelmanthorpe, Huddersfield, 1902 (B. Morley); 2 ♂♂, 10 ♀♀ Barnsley, 1901—1903 (S. Harrison); 6 larvae; 1 ♂, 1 ♀ Europe; 1 ♂, 2 ♀♀ Bern, Switzerland, May 1891; 2 ♂♂, 3 ♀♀ Crimmitschau, May 1896—1898 (Th. Wagner); 2 ♂♂, 5 ♀♀ Liebenau, Bohemia, 460 m., June 1897—1908 (Emil Grادل); 1 ♀ Berlin, 1 ♂ Germany (Buchecker coll.); 3 ♂♂, 5 ♀♀ (Felder coll.); 1 ♂ Herculesbad, Hungary, July 12, 1907 (Walter Rothschild and Ernst Hartert); 1 ♂ Fogares; 1 ♂, 1 ♀ Marmaroszuget, Transylvania (Farkos Sandor); 4 ♂♂, 2 ♀♀ Luncheon; 1 ♂, 5 ♀♀ Caunterets, French Pyrenees, July 1905—1906 (Walter Rothschild and Ernst Hartert); 1 ♀ Granada, Andalusia, Spain (C. Ribbe); 1 ♂?; 3 ♂♂, 3 ♀♀ St. Petersburg (Gronm-Grschmailo coll.); 2 larvae. The following are all aberrations, including *zatima*, *intermedia*, and *deschangei*: 4 ♂♂, 8 ♀♀ Germany (Gronm-Grschmailo coll.); 11 ♀♀, 19 ♀♀?; 3 ♂♂ Berlin; 1 ♂, 1 ♀ Heligoland.

916A. *D. lutea japonica* subspec. nov.

♂♀. Differs from *lutea lutea* in both sexes by generally smaller size and absence of black spots on the upperside, except the two on costa and the two on each side of vein 1 of forewing.

Hab. Yokohama, Japan, July 1898.

Staudinger and Rebel place *D. punctaria* (Stoll) as a subspecies of *lutea*. This is absurd, as it does not belong to the same section of the genus, being nearer *lubricipeda* (*menthrasti*).

916B. *D. lutea rhodosoma* Turati.

1 ♂ Ficuzza, Sicily, June 8, 1908.

917. *D. pseudomaenas* spec. nov.

♂. Pectus, head, and thorax orange-buff; antennae white above, grey below; basal and anal segments of abdomen orange-buff, rest blackish clothed with dense

yellow hairs.—Forewing greyish ash-brown, veins white, about one-fourth from base a transverse darker shade.—Hindwing greyish white, an indistinct brown-grey submarginal band.

Length of forewing: 15 mm.

Hab. Khasis, June 1895 (native collectors).

1 ♂.

918. *D. pilosa* spec. nov.

♂. Pectus buff; palpi black; head and thorax orange; abdomen orange.—Forewing orange-buff.—Hindwing yellowish buff.

♀. Larger; pale buffy yellow, with dorsal and lateral rows of black dots on abdomen.

Length of forewing: ♂ 17 mm.; ♀ 22 mm.

Hab. Khasis, September 1895 (native collectors).

1 ♂.

919. *D. kannegieteri* spec. nov.

♀. Pectus grey; head and thorax buff; abdomen banded black and orange.—Forewing orange-buff, a broad antemedian and postmedian sinuous transverse band of brown-grey, and a spot of same colour between.—Hindwing orange-buff, a minute cellular stigma and a short band of brown between veins 2 and 5.

Length of forewing: 20 mm.

Hab. Hili Madjedja, North Nias, September—December 1895 (L. Z. Kaunegieter).

1 ♀.

920. *D. flavens* (Moore).

1 ♂, 3 ♀♀ Sikkim (Mandelli) (Felder coll.); 3 ♀♀ Sikkim, 4000—7000 ft. (Otto Möller) (H. J. Elwes coll.); 1 ♀ Merkara, October 1903.

921. *D. flavalis* (Moore).

5 ♂♂ Bhutan (1 J. G. Pilcher, June 4, 1889); 12 ♂♂, 1 ♀ Sikkim, 7000 ft. (H. J. Elwes, August 1886; A. V. Knyvett; Otto Möller, September 1888—9) (H. J. Elwes coll.); 1 ♂ Darjeeling; 1 ♀?; 3 ♂♂ Darjeeling, July 1886 (H. J. Elwes) (Elwes coll.).

922. *D. rubitincta* Moore.

7 ♂♂, 1 ♀ Sikkim, 7000 ft. (Otto Möller, September 1888; A. V. Knyvett) (H. J. Elwes coll.); 2 ♂♂, 1 ♀ Sikkim, May 1889, 3 ♂♂ Bhutan, July 1889 (J. G. Pilcher); 4 ♂♂, 1 ♀ Darjeeling (Dr. Lidderdale; J. G. Pilcher).

923. *D. erythrophleps* Hampson.

1 ♂ Naga Hills, Assam., 5500—7000 ft., September—October 1889 (W. Doherty, type, H. J. Elwes coll.).

924. *D. everetti* spec. nov.

♂. Pectus orange; legs, tarsi black; tibiae and coxae black inside, orange outside; antennae black, strongly pectinated; head and thorax dark buffy orange; abdomen dark buffy orange.—Forewing dark buffy orange, two dark brown spots

two-fifths from base on each side of subcostal vein and one above vein 1, an ellbowed postmedian transverse band of similar spots from costa to inner margin.
—Hindwing buffy orange.

Length of forewing : 15 mm.

Hab. South Flores, dry season, November 1896 (A. Everett).

1 ♂.

925. *D. unilinea* spec. nov.

♂. Pectus and sides of thorax crimson; palpi pale crimson, last joint black; head and thorax creamy white; abdomen pale crimson, with dorsal row of black dots; antennae black.—Forewing creamy yellowish white, an oblique, somewhat broken dark brown band from termen to centre of inner margin.—Hindwing pure white, a cellular stigma, a spot at vein 5, and an oblique row of spots from tornus to vein 3 dark brown.

♀. Similar, but forewing yellower and the band of spots from tornus of hindwing absent.

Length of forewing : ♂ 21 mm.; ♀ 23 mm.

Hab. Pu-tsu-fong, West China, 9820 ft., June—July 1890 (native collectors); Nanchuen, Szechuen, China, July—September.

2 ♂♂, 1 ♀.

926. *D. sparsalis* (Walk.).

1 ♀ Tondano, North Celebes, September—October 1899.

927. *D. bifasciata* (Butl.).

3 ♂♂, 3 ♀♀ Japan; 1 ♀ Central Japan; 1 ♀ Yokohama, Japan, July 1889 (Dr. Fritze).

928. *D. comma* (Walk.).

1 ♀ Kulu District, North-West India.

929. *D. seriatopunctata* (Motsch.).

5 ♂♂, 6 ♀♀ Japan : 2 ♂♂, 1 ♀ Hakodate, Japan, June—September 1886 and June 1887 (J. H. Leech and native collectors); 6 ♂♂, 3 ♀♀ Yokohama, Japan (1 ♂ 1886, Mauley; rest July 1898); 1 ♂ Oiwake, Japan, 1887 (H. Pryer coll.); 1 ♂ Karinyama, Nippon, July; 1 ♂ Nagasaki, Japan, May 1886 (J. H. Leech); 1 ♀ Tesio, Hokkaido, Japan, June 1901; 1 ♀ Pamirs; 2 ♂♂, 2 ♀♀ Amur (Gronm-Grschmailo coll.); 1 ♂ Sidemi, Amur, July (Tancré); 1 ♀?; 1 ♀ Sapporo, Yezo, Japan, August 28, 1896; 1 ♂ Japan (H. Pryer); 1 ♂ Amur (H. J. Elwes coll.).

930. *D. canescens* (Butl.).

2 ♂♂, 2 ♀♀ Toowoomba, Queensland; 1 ♀ Mackay, Queensland; 1 ♂ Beechworth, Victoria, December 1887; 1 ♀ Sydney, New South Wales; 1 ♂, 3 ♀♀ (Felder coll.); 1 ♀ Australia.

931. *D. stigmata* (Moore).

2 ♂♂, 1 ♀ Darjeeling, 7500 ft. (H. J. Elwes, July 1886; A. V. Knyvett, May—June 1889); 3 ♂♂ Sikkim, 7000 ft. (A. V. Knyvett; Otto Möller, 1889) (H. J. Elwes coll.); 13 ♂♂, 1 ♀ Bhutan (2 ♂♂, 1 ♀ July 1889, J. G. Pilcher);

1 ♂, 3 ♀♀ Sikkim, 7000—10,000 ft., June—September 1889 (J. G. Pilcher); 8 ♂♂, 4 ♀♀ Darjeeling (2 ♂♂, J. G. Pilcher, June 1889; 5 ♂♂, 4 ♀♀ Dr. Lidderdale); 3 ♂♂ Khasis, Assam, June 1895 (native collectors); 1 ♂ Chumbi Valley, Thibet; 2 ♂♂ Mount Arizan, Kagi District, Central Formosa, July 1908; 4 ♂♂ Darjeeling, July 1886 (H. J. Elwes); 2 ♂♂, 2 ♀♀ Sikkim, 1889 (Otto Möller) (H. J. Elwes coll.).

932. *D. meridionalis* spec. nov.

♂. Pectus brownish grey; legs, tarsi black, tibiae and coxae crimson; palpi crimson; sides of head black, frons and vertex creamy white; tegulae creamy white, patagia black with creamy white borders, thorax black; abdomen crimson with a dorsal row of black patches.—Forewing creamy white, covered with a number (25) of large brownish black quadrate patches, which are quite irregularly placed in basal third of wing, but form three irregular and ill-defined transverse bands in outer two-thirds.—Hindwing pale buff, a large brownish patch in cell, a nearly complete dark brownish submarginal band and a marginal row of brownish dots.

Length of forewing : 23 mm.

Hab. Parkside, South Australia.

1 ♂.

933. *D. cymbalophoroides* spec. nov.

♂. In coloration this species is nearest to *aretichroa* Druce, but has strongly pectinated antennae.

Pectus sooty brown; legs brown, coxae crimson; palpi blackish brown; head creamy white; antennae brown; tegulae and patagia black with broad cream borders; thorax black, cream beneath patagia; abdomen crimson with yellowish tinge, a central dorsal black band.—Forewing cream, four large black irregular patches run into wing from costa, the first to beyond median vein, the outer two into cell and on to discocellulars respectively; five other large black irregular patches are on rest of wing.—Hindwing pale yellowish salmon, suffused with rose on inner third, three brownish spots between cell and costa, and two or three patches between vein 3 and termen.

♀. Differs in having the forewing almost entirely black, only a band above vein 1 from base to tornus, the outer margin joining the band at tornus, and four or five spots on costa and between cell and termen are cream-colour.—Hindwing pale crimson, outer half almost covered with large sooty patches.

Length of forewing : ♂ 25 mm.; ♀ 30 mm.

Hab. South Flores, dry season, November 1896 (A. Everett): Sapit, Lombok, 2000 ft., May—June 1896 (H. Fruhstorfer).

1 ♂, 1 ♀.

934. *D. pseudolutea* spec. nov.

♂. Looks intermediate between *lutea* and *flavens*.

Pectus orange, grey in centre; legs and antennae black; palpi orange-buff, last joint black; head and thorax orange-buff; abdomen orange, a dorsal dot and last two segments before anal segment, and a lateral row of black spots on each side.—Forewing orange-buff, a convex transverse antemedian row of brownish spots from inner margin to subcostal vein, rather faint between vein 3 and subcostal,

an oblique band of various-sized brownish patches from termen to centre of inner margin, beyond this three pairs of striae at veins 4, 5, and 6, and a dot on each side of vein 1 at tornus.—Hindwing orange-buff, a cellular stigma, a double spot at vein 5, and an oblique band of spots from tornus to vein 3 brownish.

Length of forewing : 17 mm.

Hab. Japan.

1 ♂.

935. **D. leopardina** (Koll.).

1 ♂ Mussorie (S. Robson); 1 ♂ Kulu District, North-West India; 1 ♂, 1 ♀ Sikkim (♂ May 1893, J. G. Pileher); 1 ♀ Knmaon, July 1893 (J. G. Pileher); 1 ♀ ?; 3 ♀ ♀ ? (Stoliczka, January 1867, ex Felder coll.).

936. **D. inaequalis** (Bntl.).

2 ♂♂ Japan; 2 ♂♂, 2 ♀♀ Yokohama, Japan, June 10, 1898, and July 1889 (Dr. Fritze); 1 ♂ Hakone, Japan, August 1886 (Smith).

937. **D. obliqua obliqua** (Walk.).

Sir George Hampson has united among others under *obliqua* the following : *obliqua* (Walk.), *todara* (Moore), *nydia* (Butl.), *mandarina* (Moore), *ione* (Butl.), *bifascia* (Hmps.). This is certainly wrong, but as I have not enough dated material it is very difficult to decide if some of the forms are or are not seasonal forms. I therefore have for the moment retained *todara* (Moore), *mandarina* (Moore), *bisecta* (Leech), *confusa* (Butl.), and *ione* (Butl.) as local subspecies of *obliqua* : *bifascia* (Hmps.) is undoubtedly a good distinct species.

5 ♂♂ Bhutan (1 September 2, 1889) (J. G. Pileher); 5 ♂♂ Sikkim (3 May 1889, 2 Möller); 2 ♂♂, 1 ♀ Allahabad, North-West India; 12 ♂♂, 6 ♀♀ Darjeeling (1 ♂ Dr. Lidderdale; 11 ♂♂, 6 ♀♀ F. Möller); 2 ♂♂ Dalhousie, India, July 1891; 1 ♂ Kurseong, 6000 ft. (Charlton) (H. J. Elwes coll.); 2 ♀♀ (1 ♀ ?, 1 ♀ Sikkim, Mandelli, ex Felder coll.); 1 ♀ Peermaad, Travancore, India; 1 ♀ Shillong, Assam, September 1893; 1 ♀ Sevan Valley, India; 1 ♂, 1 ♀ Darjeeling, 1886 (H. J. Elwes); 2 ♀♀ Sikkim, 4000—7000 ft., 1888 (Otto Möller); 1 ♂, 1 ♀ Naga Hills, Assam, 2500—8000 ft., June—August 1889 (W. Doherty); 2 ♂♂, 1 ♀ Bernardmyo, Burmah, 5500—7000 ft., May 1890 (W. Doherty) (H. J. Elwes coll.).

937A. **D. obliqua todara** (Moore).

5 ♂♂, 2 ♀♀ Nilgiris; 1 ♂, 1 ♀ Ooty (H. J. Elwes coll.).

937B. **D. obliqua** subsp. ?

5 ♂♂, 2 ♀♀ Ootacamund, Nilgiris.

This is quite different from the above, but I am not certain enough about it yet to describe it.

937C. **D. obliqua bisecta** (Leech).

1 ♂, 3 ♀♀ Omei-shan, West China; 1 ♀ Moupin, West China, June 1890 (Kricheldorf); 1 ♀ Ping-siang, South Kiangsi (Dr. Kreyenberg); 1 ♀ Nanchuen, South Szechuen, China, July—September.

937D. *D. obliqua ione* (Butl.).

1 ♂, 1 ♀ Japan; 3 ♀♀ Yokohama, Japan, June—July 1896; 1 ♀ Tokio, Japan, 1891 (Dr. Fritze).

937E. *D. obliqua confusa* (Butl.).

1 ♂ Bangalore, November (H. J. Elwes coll.).

938. *D. bifascia* (Hmps.).

1 ♂, 3 ♀♀ Calcutta; 2 ♂♂ Khasia Hills; 1 ♂ Cherrapunji, May 1893, Assam; 3 ♂♂ Travancore (Place); 1 ♂ Allahabad, North-West India; 1 ♀ Solan, India, August 1896; 2 ♂♂ Darjeeling (F. Möller); 1 ♂ Bombay; 2 ♂♂? (Felder coll.); 2 ♀♀ Sikkim, 1000—4000 ft., 1889 (Otto Möller) (H. J. Elwes coll.).

939. *D. casignata* (Stoll).

49 ♂♂, 10 ♀♀ Darjeeling, Sikkim (1 ♂ Dr. Ladderdale; 6 ♂♂, June 1889, Curtis; 44 ♂♂, 10 ♀♀, F. Möller); 10 ♂♂, 1 ♀ Sikkim (1 ♂, 1 ♀ July 1889, J. G. Pilcher; 6 ♂♂ May 1889, Curtis; 3 ♂♂, F. Möller); 1 ♂ Khasis, Assam, June 1895 (native collectors); 8 ♂♂ Bhutan; 1 ♂ Kurseong Hine, 6000 ft. (Charlton) (H. J. Elwes coll.); 1 ♂ Shillong, Assam, September 1893; 4 ♂♂, 13 ♀♀ Dalhousie, India, 1891; 2 ♂♂ Mussorie (S. Robson); 3 ♂♂, 1 ♀ Sikkim (Mandelli) (Felder coll.); 2 ♂♂ Darjeeling, June 1886 (H. J. Elwes); 1 ♂ Mongpo Gammie, Sikkim; 1 ♂ Sikkim, 7000 ft., August 1886 (H. J. Elwes); 2 ♂♂ Khasia Hills, Assam, September 1886, 4000 ft. (H. J. Elwes); 5 ♂♂, 1 ♀ Naga Hills, Assam, 2500—8000 ft., June—August 1889 (W. Doherty) (H. J. Elwes coll.).

940. *D. flaveolum* (Leech).

1 ♀?

941. *D. diplosticha* Hmps.

2 ♂♂ Natal (A. J. Spiller); 1 ♀ Mpnapua, 1 ♀ Dar-es-Salaam, German East Africa; 1 ♂, 1 ♀ Pemba Island, June 1904 (E. Morland); 1 ♀? (Felder coll.); 1 ♀ Chipaika Estate, nr. Bandawe, December 19, 1899 (F. Watkinson); 1 ♀ and 2 larvae Nguelo, Usambara (Dr. Kummer); 1 ♂ Canhooca, Angola (Dr. Ansorge).

942. *D. gopara* (Moore).

4 ♂♂, 2 ♀♀ Khasis, Assam, March 1894 to October 1895 (native collectors); 3 ♀♀ Sikkim (Mandelli) (Felder coll.); 1 ♂, 4 ♀♀ Sikkim, 4—7000 ft. (Otto Möller); 1 ♂ Khasia Hills, Assam (native collectors) (H. J. Elwes coll.).

943. *D. assamensis* spec. nov.

♂. Pectus grey; legs blackish, coxae crimson; palpi black; antennae black; head and thorax clay hnl'; abdomen apparently crimson with central dorsal row of black dots.—Forewing brownish flesh-colour, a black dot above vein 1 and two pairs of streaks of black on same vein more towards outer margin, an oblique line of black striae from termen to spot above vein 1, and some irregular patches of similar striae between this line and outer margin.

♀. Clay buff, a cellular brownish grey stigma and oblique row of patches from tornus to vein 4 on hindwing; abdomen orange.

Length of forewing : ♂, 20 mm.; ♀, 22 mm.

Hab. Digboi, Assam (L. Brunt): Khasis, Assam, May 1893 (native collectors).

1 ♂, 5 ♀♀.

944. *D. albens* spec. nov.

♀. Legs and antennae black; head and thorax greyish cream; abdomen orange with dorsal black spots.—Forewing greyish yellowish white, with three transverse rows, more or less interrupted, of blackish spots.—Hindwing similar, but only with a single submarginal row of larger spots and a cellular stigma.

Length of forewing : 22 mm.

Hab. Merkara, India, September 1903; Permoad, Travancore.

2 ♀♀.

945. *D. subtestacea* spec. nov.

♂. Pectus grey; legs and antennae black; palpi grey, last joint black; head and thorax testaceous buff; abdomen orange, dorsal and lateral rows of black spots.—Forewing testaceous clay buff, three black spots near termen between veins 7 and 8 and three smaller between veins 4 and 6.—Hindwing paler, a cellular stigma, a spot on vein 6 and one at tornus and below vein 2 sooty.

Length of forewing : ♂ 22—24 mm.

Hab. Sansako, North Formosa, March 18, 1898; Kagi District, Central Formosa.

2 ♂♂.

946. *D. hosei* spec. nov.

♂. Pectus pale orange; legs brown; palpi basal joint pale orange, rest brown; head and thorax creamy testaceous; antennae brown; abdomen yellow, with black spots on last six segments above.—Forewing testaceous, a basal black dot, two black spots on costa, one at apex of cell, and two pairs on vein 1, one pair near base and one pair near tornus, five small submarginal blackish striae.—Hindwing testaceous buff, a cellular stigma, two patches at tornus and two on each side of vein 2 sooty brown.

Length of forewing : 20 mm.

Hab. Mount Muln, North Borneo, 1000—4000 ft. (Charles Hose).

1 ♂.

947. *D. javana* spec. nov.

♂. Pectus sooty; legs brown; palpi brown; antennae pale brown; head and thorax brownish straw-colour; abdomen dirty orange, black dots on four central segments in type absent in others.—Forewing testaceous cinnamon straw-colour, with a broken oblique line of black striae from termen to vein 1, and a similar submarginal one.—Hindwing pale clay buff, a cellular stigma, a patch at tornus, and a spot between veins 5 and 6 sooty.

Length of forewing : 21 mm.

Hab. West Java.

4 ♂♂.

948. *D. multiguttata multiguttata* (Walk.).

D. multiguttata has four very well-marked subspecies.

10 ♂♂, 1 ♀ Sabathu, Simla, August 1889; 7 ♂♂, 13 ♀♀ Kulu District, North-West India; 6 ♂♂ Dalhousie, India; 2 ♂♂ North-West India; 3 ♂♂, 2 ♀♀ Allahabad, North-West India; 2 ♀♀? (Felder coll.); 2 ♀♀ Kumaon, July 1892 (J. G. Pileher); 1 ♂, 1 ♀ Mandi, N.W. Himalayas, 3000—5000 ft., 1883 (G. Young) (H. J. Elwes coll.).

948A. *D. multiguttata major* subsp. nov.

♂. Differs from *m. multiguttata* by its much larger size, bright orange head and tegulae, larger spots on forewing, bright orange hindwing, and large black patch on anal segment of abdomen.

♀. Differs from *m. multiguttata* by its very large size, orange head and tegulae, less spotted forewing, bright orange hindwing, and large black patch on anal segment of abdomen.

Length of forewing { *multiguttata multiguttata*, ♂ 17 mm.; ♀ 21 mm.
 multiguttata major ♂ 25 mm.; ♀ 30 mm.

Hab. Chandkhira, Silhet, 4 ♂♂, 2 ♀♀: Khasia Hills, Assam, 11 ♂♂, 12 ♀♀, 1894—1895 (native collectors).

948B. *D. multiguttata pallidior* subsp. nov.

Differs from *m. multiguttata* by its large size and heavily spotted forewing, and differs from *m. major* by the white head and tegulae, the pale buff hindwing, and the absence of the large patch on anal segment of abdomen.

Hab. 4 ♂♂, 2 ♀♀ Bhutan; 1 ♂, 1 ♀ Darjeeling, Sikkim; 7 ♀♀ Sikkim [1 June 11, 1889 (J. G. Pileher); 6 (Mandelli) ex Felder coll.]; 3 ♀♀?; 2 ♀♀ Darjeeling (F. Möller); 1 ♂ Darjeeling, August 1886 (H. J. Elwes); 1 ♂, 1 ♀ Tiota, Sikkim, July 1886, 1000 ft. (H. J. Elwes); 1 ♀ Sikkim, August 28, 1888 (Otto Möller) (H. J. Elwes coll.).

I have no specimens of *D. m. pardalina* Walk.

949. *D. occidentens* spec. nov.

♀. Pectus orange; head grey; vertex orange; thorax grey; tegulae and patagia edged with orange; abdomen orange, banded with black.—Fore- and hindwings orange.

Length of forewing: 21 mm.

Hab. Gambaga, Gold Coast (Dr. Bury).

950. *D. holoxantha* Hmps.

1 ♀ Entebbe, Uganda, October 1901 (Captain Rattray).

951. *D. madagascariensis* (Bntl.).

1 ♂ Madagascar; 1 ♀ Antananambé, Antongil Bay, Madagascar, March—April 1897 (A. Mocquerys).

952. *D. lucida* Drnce.

5 ♂♂ Entebbe (F. J. Jackson); 2 ♂♂ Kampala, Uganda, April 1900 (Captain Rattray); 1 ♂ Bihé (Edward Sanders); 1 ♂ North Bailundu, Angola, September 16, 1901 (Pemberton); 1 ♂ Changanuwe, British East Africa, April 1896; 1 ♂ Dar-es-Salaam, German East Africa; 1 ♂ Nzoia River, Kavirondo, December 16, 1896 (Dr. Ansonge).

953. *D. flava* (Willgrn.).

3 ♂♂, 2 ♀♀ Natal (A. J. Spiller); 1 ♂ Weenen, Natal, November 1893; 1 ♀? (Felder coll.); 1 ♂ Caiala, Bihé, Angola, December 1, 1904 (Dr. Ansonge); 12 ♂♂, 6 ♀♀ Transkei, Cape Colony (Miss Barrett); 1 ♂ Benguella, November 1906; 1 ♀ Talala, Benguella, December 1905 (Dr. Ansonge); 1 ♀ Transkei, Cape Colony (Miss Barrett).

954. *D. pulveria* Hmps.

1 ♂, 3 ♀♀ Sapucay, Paragnay, July 1901 (W. Foster); 6 ♀♀, 7 ♂♂ Ciudad de Tucuman (Dinelli and Manetti); 1 ♂, 3 ♀♀ Tucuman (Baer); 6 ♂♂, 9 ♀♀ Tucuman (Steinbach); 1 ♂, 2 ♀♀ Organ Mts., Tijnco, Brazil; 1 ♀ Corcovado; 1 ♂ Rio de Janeiro; 1 ♀ Petropolis; 2 ♀♀ Salta, Argentina; 1 ♂, 3 ♀♀ São Paulo; 4 ♂♂, 1 ♀ Minas Geraës (Kennedy); 1 ♀ Tucuman, April 1902 (Dinelli).

955. *D. sulphurea* Bartel.

1 ♂ Masindi, November 16, 1897; 1 ♂ Katagrukwa River, Unyoro, April 4, 1897 (Dr. Ansonge); 1 ♂ Uganda; 1 ♂ Gambaga, Gold Coast (Dr. Bury).

956. *D. immaculata* Bartel.

1 ♂ Ogrugn, Niger; 1 ♂ Natal (A. J. Spiller); 3 ♀♀ Yakusu, Upper Congo, September 1900 (Rev. Kenred Smith); 1 ♀ Moyamba, Sierra Leone, May 1903 (D. Cator).

957. *D. costata costata* (Boisd.).

1 ♂ New Britain = Neu Pommern (Cotton and Webster); 2 ♂♂ Mioko, Duke of York Island = Neu Lanenburg (C. Ribbe); 1 ♀ Kinniguang, New Britain (C. Ribbe).

957A. *D. costata vivida* subsp. nov.

Differs from *c. costata* by its deeper buffish orange colour, and in the nervres being much more heavily scaled with black-brown; it is also larger.

Length of forewing { *costata costata*, ♂ 21 mm.; ♀ 27 mm.
 costata vivida ♂ 25 mm.; ♀ 31 mm.

Hab. Biagi, Mambare River, 5000 ft., North British New Guinea, March 1906 (A. S. Meek); Upper Aroa River, British New Guinea, February 1903 (A. S. Meek); Milue Bay, South-East British New Guinea, January 1899 (A. S. Meek); Fergusson Island, D'Entrecasteaux Islands, December 1895 (A. S. Meek).

9 ♂♂, 3 ♀♀.

D. lutescens, etc.

Under this name Sir George Hampson has included what I am convinced are three distinct species—viz. *lutescens* Walk., *mundata* Walk., and *penicillata* Walk. I give here the key to these three forms :

- | | | | |
|-------------------------------|---|---|----------------------|
| 1. | { | Ground-colour creamy white in both sexes | <i>mundata</i> . |
| " " orange-buff " " | | " | |
| 2. | { | Forewings with internervular grey bands entirely absent in both sexes
or barely indicated in the ♂ | <i>lutescens</i> . |
| | | Forewings with strongly marked internervular grey bands in both
sexes | <i>penicillata</i> . |

958. *D. lutescens* (Walk.).

1 ♂ Ogruga, 2 ♂♂ Warri, June 1897 (Dr. Roth), 3 ♂♂ Assaba (Dr. Cross), 1 ♂ Ognta, October 15, 1901, River Niger, West Africa (Dr. Ansorge); 3 ♂♂, 2 ♀♀ Sierra Leone, West Africa (1 ♂ Major Bainbridge): 1 ♂, 1 ♀ Moyamba, Sierra Leone (D. Cator); 3 ♂♂ Gambaga, Gold Coast (Dr. Bury); 1 ♀ Port Lokkoh, Benue River, Suva Country, Nigeria, July 1899 (Capt. Stevens).

959. *D. penicillata* (Walk.).

1 ♀ Moyamba, Sierra Leone (D. Cator); 1 ♀ Akassa, Niger River; 2 ♂♂, 2 ♀♀ Bihé, Angola, October 1901 (H. Pemberton); 1 ♀ Stanley Pool to Lokolele, Congo, 1894 (Harrison); 4 ♂♂ Weenen, Natal, December 1893—January 1895; 5 ♂♂, 3 ♀♀ Natal (A. J. Spiller); 3 ♂♂, 3 ♀♀ Dar-es-Salaam, 5 ♂♂ Kilwa, German East Africa (Reimer); 2 ♂♂?; 1 ♂, 1 ♀ Pemba Island, 1904 (E. Morland); 1 ♂, 2 ♀♀ Shilouvane, Transvaal (H. Junod); 1 ♀♀ (Mrs. Monteiro, either Angola or Delagoa Bay); 1 ♂ Barberton, S.E. Africa (Dr. Percy Rendall); 1 ♂ Natal (Stephens, ex coll. Felder); 1 Tanta or Taveta, British East Africa, May 1891; 1 ♂ Loanda (Welwitsch, ex coll. Felder); 1 ♂ Drakensberg Range, Natal; 1 ♀ Likoma, Lake Nyassa, April 25, 1896 (Dutton); 1 ♂ Mombasa, 1905 (F. J. Jackson).

960. *D. rhodesiana* Hampson.

2 ♂♂ Entebbe, Uganda, February—March 1902 (Capt. Rattray).

961. *D. jacksoni* spec. nov.

♂. Peetus grey; legs grey, coxae orange; antennae black; palpi black, orange at base; head and thorax mouse-grey, collar and margin of tegulae rufous orange; abdomen bright rufous orange, a dorsal row of black spots.—Forewing pale creamy buff, nervures bright orange, internervular spaces with broad grey bands.—Hindwings semihyaline white, fringe and inner area lemon-yellow.

Length of forewing: 22 mm.

Hab. Nairobi, British East Africa, March and April 1905 (F. J. Jackson).

8 ♂♂. There is also a ♂ in the British Museum.

962. *D. mundata* (Walk.).

1 ♂, 1 ♀ Sierra Leone; 1 ♂ Lagos, West Africa; 2 ♂♂ Gamboga, Gold Coast (Dr. Bury); 1 ♂ Abanga River, Gaboon, November 1907 (Dr. Ansorge); 1 ♂ Akassa to Onitsha, River Niger (Dr. Cook); 1 ♂ Kampala, February 22, 1897 (Dr. Ansorge).

963. *D. crossi* spec. nov.

♂. Pectus, legs, and palpi sooty grey; antennae brown; head and thorax pale testaceous buff-brown; abdomen similar, but with a dorsal line of sooty tufts.—Fore- and hindwings pale testaceous buff-brown.

Length of forewing: 16 mm.

Hab. Assaba, Niger (Dr. Cross); Warri, July 1897 (Dr. Roth); Agberri, Niger River, December 1901 (Dr. Ansorge); Bathurst, West Africa.

4 ♂♂.

964. *D. scita* (Walk.).

2 ♀♀ Natal (1 Felder coll.); 6 ♂♂ Natal (A. J. Spiller); 1 ♂?; 1 ♂ Durban, Natal, December 1907 (G. F. Leigh).

965. *D. leighi* spec. nov.

This specimen was sent me by Mr. G. T. Leigh as a variety of *D. flava*, but I consider it is distinct.

♂. Pectus and legs greyish brown; antennae black; head and thorax buffy orange; abdomen orange, with dorsal row of black spots.—Forewing orange, nervures leaden blue-grey.—Hindwing black, costal outer and inner margins and basal fifth orange.

Length of forewing:

Hab. Durban, Natal (G. F. Leigh).

1 ♂.

966. *D. latiradiata* Hmps.

2 ♂♂ Bashoe River, Caffraria (Felder coll.); 1 ♀ East Pondoland.

967. *D. bretandiani* (Oberth.).

1 ♂ Chumbi Valley, Thibet.

968. *D. perornata* (Moore).

2 ♂♂ Kashmir Valley, 12,000 ft., August 24 (Col. Ward).

969. *D. purpurata purpurata* (Linn.).

6 ♂♂, 2 ♀♀? (Felder coll.); 6 ♂♂, 7 ♀♀?; 1 ♂ Rheingau; 3 ♀♀ Wiesbaden; 1 ♂ North Germany, 3 ♂♂, 2 ♀♀ Saxony, 1 ♂, 1 ♀ Zara, Dalmatia (Gronm-Grschmailo coll.); 1 ♀ Zürich, Switzerland (Buchecker coll.); 1 ♂, 1 ♀ Bern, Switzerland; 2 ♀♀ Crimmitschau, June—July 1896 (Th. Wagner); 1 ♂ Kronstadt, Transylvania; 1 ♂, 1 ♀ Europe! (Meyer collection); 19 ♂♂, 2 ♀♀ Digne, Basses Alpes, June 17—30, 1908 (Walter Rothschild and Karl Jordan). The following are aberrations: 1 ♀ Sarepta (Gronm-Grschmailo coll.), spots on forewing almost all absent; 3 ♀♀ Germany (2 Gronm-Grschmailo coll.), the forewings with broad bands of dark brown patches; 1 ♀♀ forewings immaculate, hindwings, base, and a broad interrupted submarginal band black; 1 ♂, 1 ♀ South Germany, hindwings yellow; 1 ♂ Yokohama, Japan, July 1889 (Dr. Fritze), very large, spots on forewing partly obsolete and lavender-grey; 4 larvae.

970. *D. amurensis* (Brem.).

3 ♂♂?; 1 ♂, 1 ♀? (Felder coll.); 2 ♂♂ Amur (Groum-Grschmailo coll.); 7 ♂♂, 2 ♀♀ Gensan, Corea, July 1887 (J. H. Leach); 1 ♂, 2 ♀♀ Japan; 1 ♂, 1 ♀ Ningpo, China, July 1886 (native collectors); 5 ♀♀ Yokohama, Japan (1 Manley, 1886; 4 July 1899, Dr. Fritze); 7 ♂♂, 4 ♀♀ Assamayama, July 1898: 8 ♂♂, 2 ♀♀ Ching-Ping, Central China, May 1889; 2 ♂♂ Ichang; 2 ♂♂, 3 ♂♂ Chang-Yang, West China, July 1888 (A. E. Pratt); 2 ♀♀ Ta-t sien-lu, West China; 7 ♂♂, 5 ♀♀ Kinkiang, West China, June 1887 (A. E. Pratt); 1 ♂ Anutshino, South Ussuri, 100 km. from Nikolsk, June 1908; 2 ♂♂ Su-Chan, South Ussuri district, near Nachodka Bay.

971. *D. metalkana* (Led.).

5 ♂♂, 4 ♀♀? (1 ♂, 1 ♀ Felder coll.); 1 ♂, 3 ♀♀ Hungary (Groum-Grschmailo coll.); 2 ♂♂, 2 ♀♀ Mehadia!! (O. Werner); 2 ♂♂ Amur (Groum-Grschmailo coll.); 1 ♂ Yezzo, Japan, August 2, 1908.

972. *D. sannio sannio* (Linn.).

1 ♂, 7 ♀♀ Great Britain; 2 ♂♂ New Forest, July 1905 (B. Oliver); 5 ♂♂ Lyndhurst, New Forest, July 1904 and 1907 (A. T. Goodson); 4 ♂♂ Brockenhurst, New Forest, June 1906 (H. B. Whithouse); 1 ♂, 1 ♀? (Sand coll.); 1 ♂, 1 ♀ Germany (Groum-Grschmailo coll.); 1 ♂ Munich (Buechecker coll.); 6 ♂♂, 7 ♀♀ Crimmitschau, July—August 1896 (Th. Wagner); 2 ♂♂, 2 ♀♀ Liebenau, Bohemia, July 1907 (Emil Gradl); 8 ♂♂, 3 ♀♀? (Felder coll.); 1 ♂ Marmaroszuget, Transylvania (Farkas Sandor); 1 ♀ Herkulesbad, Hungary, July 17, 1907 (Walter Rothschild and Ernst Hartert); 3 ♂♂, 3 ♀♀ Zürich, Switzerland (Groum-Grschmailo coll.); 2 ♂♂ Täsch, near Zermatt, 1500—1900 m., August 1907, 1 ♂ Château d'Oex, July—August 1907, Switzerland (Oscar Neumann); 18 ♂♂, 1 ♀ Tarasp, Engadine, Grisons, July 1901—July 1903 (Walter Rothschild and Ernst Hartert); 1 ♂ Upper Val d'Uina, Grisons, 1700 m., July 26, 1903 (Ernst Hartert); 10 ♂♂, 3 ♀♀ Campfer, Engadine, Grisons, July 1904 (Walter Rothschild and Karl Jordan); 20 ♂♂, 1 ♀ Silvaplana, Engadine, Grisons, June and July 1902—1904 (Osirnig); 2 ♀♀ Motta Naluns, Engadine, Grisons, July 23, 1903 (A. T. Goodson); 1 ♂ Engadine, 1897 (Walter Rothschild); 1 ♂ Pralognan, Savoie, 1400—1700 m., August 21, 9 ♂♂ La Grave, Hautes Alpes, July 1908 (Walter Rothschild and Karl Jordan); 5 ♂♂, 2 ♀♀ Canterets, 2 ♀♀ Hospice de France, Luchon, French Pyrenees, July 1906 (Walter Rothschild and E. Hartert); 2 ♂♂, 1 ♀ Gèdre, Hautes Pyrénées (P. Rondon); 1 ♂, 1 ♀ Wiesbaden, Germany; 1 ♂ Crimmitschau, June 25, 1898 (Th. Wagner); 43 ♂♂, 1 ♀ San Ildefonso, Segovia, Spain, June—July 1906 (M. de la Escalera); 6 ♂♂ Sila Mountains, Botte Donata, Calabria, 1000—1800 m., July 1907 (Oscar Neumann); 1 ♂, 1 ♀ Podolia, 1 ♂ Ural (Groum-Grschmailo coll.).

972A. *D. sannio caucasica* Stand.

2 ♂♂ Majkop, North-West Caucasus, May 1902 (Ch. Schaposchnikoff).

972B. *D. sannio mortua* Stand.

1 ♂ Katta-Karamuk, Siberia (Groum-Grschmailo coll.); 1 ♂ Issyk-kul, 1 ♂ Bir-Basch, south shore of Lake Issyk-kul, July 21—24, 1902, 1 ♂ north-eastern

shore of Lake Issyk-kul in Summer-house of Mr. Lolsschakoff, June 25—26, 1905 (Kutsenko); 2 ♂♂ Sajau, 1 ♂, 1 ♀ Changai, 2 ♂♂, 2 ♂♂ Juldus, 1 ♂ Urga, 1 ♀ Altai, 1 ♂, 1 ♂ Kentei, Asiatic Russia.

972c. **D. sannio uniformis** Bang-Haas.

5 ♂♂ Aulie Ata, Syr Daria: 2 ♂♂ Ketmen Tjube, Snsamyr Mountains, June—July 1906.

972d. **D. sannio amuri** Stand.

2 ♂♂ Eastern Siberia (Groum-Grschmailo coll.); 1 ♂, 1 ♂ Apfelgebirge, Transbaicalia, June 1902; 1 ♂ Anutschino, South Ussuri, 100 km. from Nikolsk, June 1908.

972e. **D. sannio irene** Butl.

3 ♂♂ Japan; 1 ♂, 1 ♀ Yokohama, Japan, July 1889 (Dr. Fritze); 1 ♀ Asahigama, Hokkaido, Japan, July 11—12, 1904 (H. J. Elwes) (H. J. Elwes coll.). The type of Butler's *irene* is an immaculate aberration, but, unfortunately, it must stand for the Japanese form.

973. **D. flammeola** (Moore).

1 ♀ Japan.

974. **D. biseriata** (Moore).

The type of this species is said to have come from the Andamans, but I believe the other known specimens have all come from Assam and Silhet.

3 ♂♂, 10 ♀♀ Khasia Hills, Assam, September 1894—October 1896 (native collectors); 1 ♀ Chaudkhira, Silhet.

975a. **D. eximia nigrescens** subsp. nov.

Differs from *eximia eximia* Swinhoe in the wings being either entirely black or only red at base and at the apex of cell.

Hab. Khasia Hills, Assam (native collectors); Interior of Sikkim (Otto Möller).

7 ♂♂.

976. **D. longiramia** Hampson.

1 ♀ Dili, Timor, May 1892 (W. Doherty).

977. **D. montana montana** (Guér.).

1 ♂ Cotype, Nilgiris, July (ex Felder coll.).

977a. **D. montana brunnea** subsp. nov.

Differs from *m. montana* in its larger size and in its much paler rufous olive-brown, not black-brown, ground-colour.

Hab. Sikkim (3 ♂♂ 7000—10,000 ft., July—October 1889, Otto Möller; 3 ♂♂ Mandelli, ex Felder coll.); Bhutan (5 ♂♂); Darjeeling, Sikkim (1 ♂ Dr. Lidderdale; 1 ♂, 1 ♀ F. Möller); 1 ♂ Darjeeling, 7500 ft., May—June 1889 (A. V. Knyvett) (H. J. Elwes coll.).

11 ♂♂, 1 ♀.

978. *D. albicornis* Hampsn.

1 ♂ Ceylon.

979. *D. rubilinea* (Moore).

12 ♂♂, 2 ♀♀ Bhutan (2 ♀♀ J. G. Pilcher, May—July 1889); 42 ♂♂, 1 ♀ Darjeeling, Sikkim (2 ♂♂ Dr. Lidderdale; 2 ♂♂ J. G. Pilcher; 24 ♂♂, 1 ♀ F. Möller); 4 ♂♂, 1 ♂ Sikkim (2 ♂♂ Otto Möller; 1 ♂, 1 ♀ 7000—10,000 ft., July—September 1889); 1 ♂ Khasis, Assam (native collectors); 4 ♂♂, 1 ♀ Darjeeling, June—July 1886 (H. J. Elwes), 3 ♂♂ Sikkim, 4000—7000 ft. (2 Otto Möller, 1 A. V. Knyvett); 1 ♂ Bernardmyo, Burmah, 5500—7000 ft., May 1890 (W. Doherty) (H. J. Elwes coll.).

980. *D. neurographa* Hampsn.

1 ♂ Mount Arizan, Kagi District, Central Formosa, July 1908.

981. *D. dinawa* B. Baker.

2 ♂♂ Mount Kebea, British New Guinea, 3600 ft., July 1903 (A. E. Pratt); 1 ♂ Upper Aroa River, British New Guinea, March 1903, eotype (A. E. Meek).

982. *D. kebea* B. Baker.

Sir George Hampson has placed this extremely distinct insect, without any apparent reason, as an aberration of *D. dinawa*.

10 ♂♂, 1 ♀ Angabunga River, affluent of the St. Joseph's River, from 6000 ft. upwards, British New Guinea, November 1904—February 1905, 10 ♂♂, 4 ♀♀ Biagi, Mambare River, 5000 ft., North British New Guinea, March 1906 (A. S. Meek).

983. *D. pratti* B. Baker.

1 ♂ Mount Kebea, British New Guinea, 3600 ft., July 1903, eotype (A. E. Pratt); 1 ♂, 1 ♀ Biagi, Mambare River, North British New Guinea, 5000 ft., March 1906 (A. S. Meek).

984. *D. meeki* spec. nov.

♂. Pectus sooty black with orange-red margins; legs sooty black-brown; palpi and sides of frons black, rest of head and thorax pale bronzy gall-stone yellow; antennae brown; abdomen salmon-colour with dorsal central dark fuscous line.—Forewing pale bronzy buff with four irregular transverse bands of apricot orange, the ante- and postmedian ones joined by a longitudinal band of same colour along the median nervure, a big patch of apricot orange at apex of cell.—Hindwing bronzy buff washed with pale crimson, a median and postmedian band of large black blotches, and from apex to vein 4 a submarginal row of five black spots.

♀. Similar but larger, and hindwing salmon crimson.

I have described the form of male I have most of, as typical, but it is a very variable insect, and one male has the forewing wood-brown, the bands deep orange golden, and the hindwing paler wood-brown slightly flushed with rose; while

several others have the hindwing pale or salmon crimson and the black patches almost absent.

Length of forewing: ♂, 28 mm.; ♀, 33 mm.

Hab. Biagi, Mambare River, 5000 ft., January—April 1906; Angabunga River, affluent of St. Joseph's River, 6000 ft. upwards, British New Guinea, November 1904—February 1905 (A. S. Meek).

21 ♂♂, 1 ♀.

985. *D. fraterna* spec. nov.

♂. Pectus black; palpi and sides of frons black; head, antennae, and thorax cinnamon brownish buff, a large wedge-shaped central patch on thorax velvety black; abdomen orange buff with traces of a central fuscous dorsal line.—Forewing cinnamon brownish buff; costa, an antemedian and two postmedian lines orange-ochre; two spots on costa and three rows of paired dots at nervures and on discocellulars black.—Hindwing orange buff, a discocellular patch and an indistinct submarginal line black.

Length of forewing: 23 mm.

Hab. Biagi, Mambare River, 5000 ft., British New Guinea, April 1906 (A. S. Meek).

2 ♂♂.

986. *D. biagi* B. Baker.

9 ♂♂, 1 ♀ Biagi, Mambare River, North British New Guinea, 5000 ft., March 1906 (A. S. Meek).

987. *D. turbida turbida* (Butl.).

2 ♂♂ New Britain, Neu Pommern (1 Wahnes); 1 ♀ Kinigunang, Bismarck Archipelago (C. Ribbe).

987A. *D. turbida meeki* (Drnce).

2 ♂♂, 4 ♀♀ Kiriwini, Trobriand Islands, April—May 1895 (A. S. Meek).

987B. *D. turbida woodlarkiana* subspec. nov.

Similar to *turbida meeki*, but ground-colour of forewings wool-brown, **not** testaceous brown suffused with bright red.

Hab. Woodlark Island, 1895 (A. S. Meek).

2 ♀♀.

987C. *D. turbida montana* subspec. nov.

♂. Differs from *turbida turbida* in the ground-colour of forewings being deep sooty wood-brown, **not** whitish testaceous brown.

♀. Differs in the ground-colour of forewings being dark sooty black-brown, **not** wood-brown, in the white discocellular patch being much obscured, and in the costal margin being either wood-brown or same as ground-colour, **not** cream-colour.

Hab. Angabunga River, affluent of St. Joseph's River, 6000 ft. upwards, November 1904—February 1905; Upper Aroa River, March 1903 (A. S. Meek); Aroa River, British New Guinea (Emil Weiske).

2 ♂♂, 3 ♀♀.

987D. *D. turbida sordidior* subsp. nov.

♂. Differs from *turbida turbida* in the ground-colour of the forewings being pale wood-brown and the outer margin chequered brown and cream, not entirely cream.

♀. Differs from *turbida montana* in the ground-colour being dark wood-brown, not sooty black-brown, and in the costal margin being cream-colour.

Hab. Fergnsson and Goodenough Islands, D'Entrecasteaux Islands, September—December 1896, Milne Bay, South-East British New Guinea, January 1899, Kumasi River, North-East British New Guinea, June 1907, Biagi, Mambare River, North-East British New Guinea, 5000 ft., April 1906 (A. S. Meek); Sattelberg, German New Guinea, February 1906 (C. Wahnes).

6 ♂♂, 7 ♀♀.

988. *D. ougarra ougarra* B. Baker.

8 ♂♂, 1 ♀ Angabunga River, affluent of St. Joseph's River, 6000 ft. upwards, November 1904—February 1905; 1 ♂ Ougarra, north of head of Aroa River, May 1903, cotype; 6 ♂♂ Biagi, Mambare River, 5000 ft., March 1906, British New Guinea (A. S. Meek).

988A. *D. ougarra germanica* subsp. nov.

♂. Differs from *o. ougarra* in the much paler ground-colour of forewing, in the absence of the dark patches between veins 1 and 4, in the second postmedian band, and in all the remaining dark patches on the wings being much smaller, and brown, not velvety black; the spots on hindwings are also much reduced.

Hab. Sattelberg, German New Guinea, March 1906 (C. Wahnes).

2 ♂♂.

989. *D. sordidescens* Hmps. n.

1 ♂ Sikkim (Mandelli, ex Felder coll.); 3 ♂♂ Darjeeling, Sikkim (1, August 1899; 2, F. Möller); 1 ♂ Bhutan, August 10, 1889 (J. G. Pilcher).

990. *D. rufescens* (Brulle).

3 ♂♂, 4 ♀♀ Teneriffe, Canary Islands (2 ♂♂, 2 ♀♀ ex Groun-Grsehmalo coll.).

991. *D. strigatula* (Walk.).

1 ♂?, 1 ♀ Java (Felder coll.); 1 ♂, 1 ♀?; 2 ♂♂, 2 ♀♀ Penang, February 1897—October 1898 (Curtis); 2 ♂♂, 1 ♀ Perak, 1800 ft., January 1897 (Curtis); 1 ♂, 1 ♀ Island of Nias; 1 ♀ Gunong Sitoli, 1 ♀ Hili Madjidi, Nias; 1 ♀ Kalim Bongo, North Nias, January 1896 (J. Z. Kannegieter); 1 ♂ Batu Island, 1896—1897 (H. Raap); 1 ♂, 1 ♀ Loeboe Raja, and 1 ♀ Padang Sidempocan, West Sumatra, August—September 1897 (Ericsson); 2 ♂♂ Mount Talang, 2 Batang Proepoc, Padang Bovenlanden, Sumatra; 2 ♂♂ Palabuan, South Java, 1892 (H. Fruhstorfer); 2 ♂♂ Java; 2 ♂♂ West Java; 2 ♂♂ Mount Arjuno (W. Doherty); 2 ♂♂, 1 ♀ Djember, Besoeki Residency, Java, 1300—2500 m., 1892 (Möllinger); 1 ♀ Bunguran, Natuna Islands, July—October 1894 (Charles Hose); 1 ♀ Kuching, 1 ♀ Sandekan, June 26, 1893, Borneo; 2 ♂♂, 2 ♀♀ Kina Balu,

North Borneo; 1 ♂ Busan, Burmah; 1 ♂ Lower Burmah; 1 ♂ Government Hill, Penang, 1000 ft. March 22, 1898 (Curtis); 1 ♀ North Celebes; 1 ♂ Onchalata, Nias Island; 1 ♀ Java (H. J. Elwes coll.).

992. *D. sumatrensis sumatrensis* (Swinhoe).

3 ♂♂ Sumatra; 2 ♂♂?; 20 ♂♂, 3 ♀♀ Batang Proepoe, 1600 m., October 1896—January 1897; 7 ♂♂ Monat Talang, Padang Bovenlanden, West Central Sumatra.

992A. *D. sumatrensis continentalis* subspec. nov.

♂. Differs from *s. sumatrensis* by its much darker colour, the forewings being sooty black-brown.

♂ also much darker.

Hab. Perak.

1 ♂, 2 ♀♀.

992B. *D. sumatrensis javanica* subspec. nov.

Differs from *s. sumatrensis* in being much paler, and in the total absence of the spotting on the hindwing.

Hab. Djember, Besoekei Residency, Java, 1300—2500 m., 1892 (Möllinger).

2 ♂♂.

993. *D. vagans* (Boisd.).

6 ♂♂ Monterey County, California; 1 ♂, 3 ♀♀ California (2 ♀♀ Felder coll.); 1 ♂ Chimney Gulch, Golden, Colorado (J. Oslar).

994. *D. imparilis* (Bntl.).

1 ♂, 5 ♀♀ Japan (1 ♂ ex Meyer coll.); 1 ♂?; 1 ♀ Asia (Meyer coll.); 1 ♀ Oiwake, Japan, 1887 (H. Pryer coll.); 1 ♀ Hakodate, Japan, June—July 1887 (native collectors).

995. *D. melaena* Hmspn.

3 ♂♂, 1 ♀ Mount Arjuno, 6000 ft. (W. Doherty) (1 ♀ ex coll. H. J. Elwes).

996. *D. turensis* (Ersch.).

2 ♂♂ Ili Territory, West Mongolia, May (Tancré); 1 ♂ Baldschuan, Turkestan; 1 ♂? (Gronm-Grschmailo coll.).

997. *D. sordida* (Hübner).

4 ♂♂, 5 ♀♀? (Felder coll.); 4 ♂♂, 4 ♀♀?; 1 ♂, 1 ♀ Sils Maria, Engadine, Grisons, 1875 (Guatek ex coll. A. von Homeyer); 3 ♂♂, 3 ♀♀ Julier Mountains, Julier Pass, Engadine, Grisons (Standfuss); 3 ♂♂, 3 ♀♀ Wallis Valley, foot of Simplon Pass (Standfuss); 1 ♂ Gadmen, Asiatic Russia.

998. *D. luctuosa* (Geyer).

4 ♂♂, 4 ♀♀ ? (2 ♀♀ Felder coll.); 1 ♂ Alps (Buechecker coll.); 5 ♂♂, 5 ♀♀ Hungary (Gronm-Grschmailo coll.); 1 ♂, 1 ♀ Gadmen, Susten, Central Asia.

999. *D. mendica* (Clerck).

8 ♂♂, 11 ♀♀ Great Britain (1 ♂ buff colour); 3 ♂♂, 1 ♀ Tring, Hertfordshire, May 1897—May 1903; 1 ♀ Kingsbury, Hertfordshire, April 29, 1896 (A. T. Goodson); 1 ♀ Brickhill, Buckinghamshire, May 12, 1902 (T. Clerck); one cocoon; 8 ♂♂, 10 ♀♀ ? (2 ♂♂, 3 ♀♀ Felder coll.; 1 ♂, 1 ♀ Gronm-Grschmailo coll.); 1 ♂ Crimmitschau, May 24, 1896 (Tb. Wagner); 1 ♂ Germany (Buechecker coll.); 1 ♀ Sils Maria, Engadine, Grisons, Gnatek, May 1875 (A. von Homeyer coll.); 1 ♀ Switzerland or North Italy ?; 1 ♂, 2 ♀♀ Gèdre, Hautes Pyrénées (Rondon); 1 ♀ Val de Arazas, Spanish Pyrenees, June 1907 (Monsquès); 7 ♂♂, 3 ♀♀ bred by Standfuss, ab. *standfussi* and ab. *inversa*; 1 larva.

1000. *D. accensa* (Swinhoe).

1 ♂, 2 ♀♀ Batang Proepoe, Padang Bovenlanden, Sumatra, 2000 m., 1897 (J. Z. Kannegieter), Loeboe Rajab, West Sumatra, June—July 1897 (Ericsson).

1001. *D. arctichroa* Drnee.

5 ♂♂ Fak-Fak, Dutch New Guinea, 1700 ft., December 1907 (A. E. Pratt).

1002. *D. fulvohirta* (Walk.).

7 ♂♂ Bhutan; 4 ♂♂ Darjeeling, 7500 ft., Sikkim (A. V. Knyvett, May—June 1889); 4 ♂♂ Sikkim, 7000 ft., 1889 (Otto Möller) (H. J. Elwes coll.); 4 ♂♂ Sikkim, June 1889 (J. G. Pilcher); 2 ♂♂ India (Meyer coll.).

1003. *D. inpleta* (Walk.).

2 ♂♂, 1 ♀ Sikkim (Mandelli, ex Felder coll.); 2 ♂♂, 1 ♀ Darjeeling, Sikkim (2 ♂♂ F. Möller; 1 ♀ Dr. Lidderdale); 1 ♂, 1 ♀ ?; 1 ♂, 3 ♀♀ Sikkim, 1000—4000 ft., 1889 (Otto Möller, ex Elwes coll.); 2 ♂♂, 3 ♀♀.

1004. *D. khasiana* spec. nov.

♀. Pectus sooty brown-black; legs and tarsi black; tibiae and coxae sooty brown, an orange line on inside of coxae; palpi and frons velvety, black vertex creamy buff; antennae black, apical fifth except extremity white; tegulae black, a large lateral spot of cream buff on both sides of each tegula; patagia cream buff, base and central stripe black; thorax velvety black, cream buff beneath patagia; abdomen deep steel blue; a bright orange ring on the five middle segments (2—6).—Forewing black, with twenty-eight cream buff blotches of various sizes as follows: a submarginal row of seven, three below and four above vein 1 from base to tornus; three in cell, two above subcostal vein, two beyond apex of cell, three between subcostal and vein 7, and two between veins 5 and 2.—Hindwing

pale, Mars yellow; margin, fringe, and submarginal band black; discocellulars and veins strongly picked out and marked with black.

♂. Similar, but smaller and paler.

Length of forewing : ♂ 26 mm.; ♀ 33 mm.

Hab. Khasia Hills, Assam, May—June 1894—1895 (native collectors).

7 ♂♂, 2 ♀♀.

1005. *D. caesarea caesarea* (Goeze).

10 ♂♂, 8 ♀♀ ? (4 ♂♂, 2 ♀♀ Felder coll.); 2 ♂♂, 2 ♀♀ Switzerland (Gronm-Grschmailo coll.); 1 ♂ Marmarosszuget, Transylvania, July 1901 (Farkas Sandor); 1 ♂ Fogres, Transylvania; 2 larvae.

1006. *D. lineata* (Walk.).

2 ♂♂ South Africa; 7 ♂♂, 3 ♀♀ Natal (A. J. Spiller); 1 ♂ Northdean; 1 ♂ Weenen, Natal; 1 ♂, 1 ♀ Kilwa, April 1900 (Reimer); 1 ♂ Mpnapua, German East Africa; 1 ♂, 1 ♀ ?, 1 ♂ Loanda (Welwitsch); 1 ♂ Natal (Felder coll.); 1 ♀ Transkei, Cape Colony (Miss Barrett); 1 ♂ Chaipaika Estate, Bandawe, Nyassaland (F. Watkinson); Mpetu, Loangwa River, Zambesi River, November—December 1895, rainy season (Coryndon); 1 ♂ Tarn, British East Africa, January 22, 1896; 1 ♂ Harar, Abyssinia, April 27, 1900 (Baron Carlo Erlanger and Oscar Neumann).

1007. *D. engraphica* (Walk.).

1 ♂, 1 ♀ South Africa; 4 ♂♂, 2 ♀♀ Transkei, Cape Colony (Miss Barrett); 2 ♂♂ Grahamstown, Cape Colony, October 1901; 1 ♂ Weenen, Natal; 1 ♂ ?; 1 ♀ Tsomo River, Caffraria (J. H. B.) (R. Trimen), type of *Aloa nudistrixa* Feld. (Felder coll.).

1008. *D. subcarnea* (Walk.).

3 ♂♂, 5 ♀♀ Japan; 4 ♂♂, 5 ♀♀ Yokohama, Japan (1 ♀ Dr. Fritze, August 1889; rest, July 1896—1898); 1 ♀ ? type of *Aloa leucothorax* Feld. (Felder coll.); 1 ♀ Shanghai ! (Felder coll.); 1 ♂ Japan (H. Pryer) (H. J. Elwes coll.).

D. subcarnea, *oberthueri*, *ericsoni*, *metarhoda*, etc.

Sir George Hampson has created great confusion in these forms. He unites *oberthueri* Semp. with *subcarnea*, in spite of Semper's statement that the underside of the abdomen is red, and therefore, if united with anything, it ought to be with *niceta* Stoll.; but it is a perfectly good species, and must be retained as such. He further unites *metarhoda* Walk. to *niceta*, with which it has nothing to do, as the undersurface of the abdomen is white, and not crimson.

The following is the present status of these insects :

Abdomen below white or whitish.	{	<i>Diacrisa subcarnea</i> (Walk.): Japan, China, Korea, etc.
		<i>D. metarhoda</i> (Walk.): Philippine Islands.
		<i>D. ericsoni</i> (Semper): Kina Balu, Borneo.
		<i>D. semperi semperi</i> Rothsch.: Sumatra.
		<i>D. semperi roseata</i> Rothsch.: Java.
		<i>D. semperi borneensis</i> Rothsch.: Borneo.
		<i>D. dohertyi</i> Rothsch.: Celebes.

Abdomen below golden yellow.	{	<i>D. cajetani</i> Rothsch.
	{	<i>D. eldorado</i> Rothsch.
	{	<i>D. niceta niceta</i> (Stoll.).
	{	<i>D. niceta cogens</i> (Walk.).
	{	<i>D. niceta semirosea</i> (Bntl.).
Abdomen below crimson.	{	<i>D. niceta papuana</i> Rothsch.
	{	<i>D. niceta intermedia</i> Rothsch.
	{	<i>D. niceta saturata</i> Rothsch.
	{	<i>D. oberthueri</i> (Semper).

There are apparently a few more forms, but without examining certain types I cannot decide about them.

1009. *D. eldorado* spec. nov.

♂. Pectus crimson; palpi crimson, last joint black; antennae black; head and thorax golden orange; abdomen crimson, a central black dot on each segment except the last two; clasper tufts yellow.—Forewing golden orange; two black spots above vein 1 one-fifth from base; a row of five black spots from centre of inner margin curving outwards to vein 4.—Hindwing: basal three-fourths crimson, outer one-fourth crimson, washed with golden; a cellular stigma and an oblique row of six spots from torus to vein 6 black.

♀. Larger, the two spots above vein 1 on forewing only; hindwing golden, only faintly tinged with pale crimson.

Length of forewing: ♂ 20 mm.; ♀ 27 mm.

Hab. Khasia Hills, Assam (native collectors); Ceylon (Nietner, ex Felder coll.).

1 ♂, 4 ♀♀.

1010. *D. cajetani* spec. nov.

♀. Pectus crimson and cinnamon; head and thorax brownish cinnamon; abdomen crimson, a central dorsal line of black spots.—Forewing pale rufous cinnamon, a black spot at upper corner of discocellulars, a black spot above and below vein 1 one-third from the base, and a similar larger one above and below the same vein in centre, similar spots above and below veins 2 and 4, and a smaller spot below vein 5.—Hindwing crimson washed with cinnamon, a large cellular and five submarginal patches black.

Length of forewing: 26 mm.

Hab. Ceram (Felder coll.).

1 ♀.

1011. *D. semperi* spec. nov.

♂. Pectus crimson; palpi crimson, last joint black; antennae black; head and thorax buff; abdomen crimson, clasper tufts buff.—Forewing buff, a dot above vein 1 one-fourth from base, and a spot above and below same vein in centre black.—Hindwing buff, a cellular black stigma.

♀. Larger; forewing has, in addition to the three marks in ♂, dots above and below veins 2 and 7; hindwing has the cellular stigma large, and in addition a submarginal row of six sooty patches; anal tuft buff.

Length of forewing: ♂, 22 mm.; ♀, 29 mm.

Hab. Mount Talang and Batang Proepoe, Padang Bovenlanden, West Sumatra.

1 ♂, 2 ♀♂.

1011A. *D. semperi roseata* subsp. nov.

♂. Differs from *semperi semperi* in the ground-colour being more brownish buff. On forewing the two central spots above and below vein 1 are extended into large blotches; there are minute black dots above and below 4, 5, 6, 7, and 8, a dot above vein 2, a spot at termen and one above subcosta just beyond apex of cell. On hindwing the basal half is orange-erimson, the cellular stigma large, and a submarginal row of seven sooty patches.

Hab. Java.

1 ♂.

1011B. *D. semperi borneensis* subsp. nov.

♀. Differs from ♀ *semperi semperi* in being much more brownish yellow; the two pairs of spots at vein 1 of forewing are much larger, there are three black spots at termen and one on costa just beyond apex of cell. On hindwing the four submarginal patches, nearest the tornus, are much larger.

Hab. Kina Balu, North Borneo.

2 ♀♀.

1012. *D. dohertyi* spec. nov.

♂. Pectus crimson; palpi black, base crimson; frons black; vertex and antennae pale creamy cinnamon; thorax pale creamy cinnamon; abdomen crimson, a dorsal central row of black spots.—Forewing pale creamy cinnamon, two minute dots above and below subcostal vein near base, two above and below vein 1 one fourth from base; a curved row of five from centre of inner margin to lower corner of apex of cell and a submarginal row from termen to vein 4 black.—Hindwing salmon-pink tinged with buff.

Length of forewing: 29 mm.

Hab. Tawaya, north of Palos Bay, Central Celebes, August–September 1896 (W. Doherty).

3 ♂♂.

1013. *D. whiteheadi* spec. nov.

This is a most remarkable insect, in appearance like a large *Teracotona*. Unfortunately the specimen is in very poor condition.

♂. Pectus, palpi and collar rich vermilion scarlet; head white; antennae very long, brown, and very strongly pectinated; thorax cream buff; tegulae and patagia broadly edged with scarlet, a black central spot in patagia; abdomen deep crimson.—Forewing cream buff, washed with orange along vein 1 and inner margin, a black dot above and below centre of vein 1.—Hindwing buff, costal area orange, inner area with rose hairs.

Length of forewing approximately 30 mm.

Hab. North Luzon, Philippine Islands, 5000–6000 ft. (John Whitehead).

1 ♂.

1014. *D. niceta niceta* (Stoll).

1 ♂ Moluccas; 4 ♂♂, 4 ♀♀ Amboyna, Molucca Islands (2 ♂♂, 3 ♀♀ Doherty, February 1892; 1 ♂ A. E. Pratt, October 1907; 1 ♂ Felder coll.); 1 ♂, 8 ♀♀ Kayeli Bourn, Molucca Islands, March 1897 (W. Doherty); 1 ♀ Ceram (Felder coll.); 1 ♀ Ternate, September 1, 1896 (A. W. Mucks); 2 ♀♀ Morotai, North Moluccas (Felder coll.); 2 ♂♂, 3 ♀♀ ? (Lorquin, ex Felder coll.).

1014A. *D. niceta eogena* (Walk).

Resembles *niceta semirosea* in the orange forewings, but always in the ♀ has median band of spots complete.

1 ♂, 4 ♀♀ Batchian, North Moluccas (1 ♀ Waterstradt; 1 ♂, 3 ♀♀ May 1892, W. Doherty).

1014B. *D. niceta hyperhoda* (Butl.).

Differs from *niceta niceta* in the pale straw-yellow not cream-coloured forewings.

2 ♀♀ New Britain = Neu Pommern; 1 ♀ Bismarek Archipelago.

1014c. *D. niceta semirosea* (Butl.).

Differs from *niceta eogena*, although similarly coloured, by the *females* having only the two lowest spots of the median band; one only (from Isabel) of my 15 ♀♀ of this form has four spots. *Males* also have less than the complete row.

2 ♂♂, 5 ♀♀ Treasury Island, August 1901; 3 ♂♂, 1 ♀ Vella Lavella, February 1908; 1 ♀ Bougainville, May 1904; 2 ♂♂, 4 ♀♀ Arawa, Bougainville, December 1907; 1 ♀ north side of Choiseul Island, December 1903; 3 ♂♂, 2 ♀♀ Isabel Island, June—July 1901, Solomon Islands (A. S. Meek); 1 ♂ Tulagi, 1 ♂ Tugela, 1 ♂ Ugi, 1 ♂ Alu, Shortland Islands, Solomon Islands (S. M. Woodford).

1014D. *D. niceta saturata* subsp. nov.

Differs from *niceta niceta* in the ♂ having forewing suffused with dark buff and hindwing being entirely crimson, and ♀ has forewing suffused with brownish pink.

1 ♂, 1 ♀ Kei Toeal, January—March 1896 (H. C. Webster); 3 ♂♂, 3 ♀♀ Little Kei, February 1897 (H. Kühn); 2 ♂♂ Great Kei, 1887 (H. Kühn).

1014E. *D. niceta papuana* subsp. nov.

Differs from *niceta niceta* in its darker cinnamon-buff forewings, the very white nervres, and the creamy brown internervular streaks.

1 ♂, 3 ♀♀ Waigen (Waterstradt); 1 ♂, 1 ♀ Dorey, Dutch New Guinea, June 1897 (W. Doherty); 1 ♂ Constantinhafen, 10 ♂♂, 13 ♀♀ Sattelberg, German New Guinea, March 1906 (C. Wahnes); 1 ♀ Arn Islands, April—May 1896 (H. C. Webster); 2 ♂♂, 5 ♀♀ Kumasi River, North-East British New Guinea, August 1907, Lower Mambare River, May 1906, Biagi, Mambare River, North-West British New Guinea, 5000 ft., January 1906 (A. S. Meek); 1 ♀ Moroka to

Mount Nisbet, British New Guinea, January—February 1896 (A. S. Anthony); 1 ♂, 1 ♀ Fak-Fak, Dutch New Guinea, 1700 ft., January—February 1908 (A. E. Pratt).

1014f. **D. niceta intermedia** subsp. nov.

Intermediate in shade of colour of forewings between *niceta semirosea* and *niceta hyperhoda*.

3 ♂♂, 6 ♀♀ Milne Bay, South-East British New Guinea, November 1898; 1 ♂, 1 ♀ Goodenough Island, D'Entrecasteaux Islands, December 1896; 1 ♂, 4 ♀♀ Fergusson Island, D'Entrecasteaux Islands, November 1894—December 1895; 1 ♂, 1 ♀ Kiriwini, Trobriand Islands, June 1895; 1 ♂, 5 ♀♀ St. Aignan, Louisiade Islands, August 1897; 3 ♀♀ Sudest Island, Louisiade Islands, April 1898; 1 ♂, 1 ♀ Rossel Island, Louisiade Islands, February 1898 (A. S. Meek); 1 ♀ Suer Mafor, May—June 1897 (W. Doherty).

1015. **D. nebulosa** (Butl.).

1 ♂?; 6 ♂♂, 3 ♀♀ Japan; 9 ♂♂, 3 ♀♀ Ishikishiri, Yezzo, Japan, July 1890 (Dr. Fritze); 1 ♀ Hakodate, August 1886 (J. H. Leech); 1 ♂ Japan (H. Pyer coll.); 1 ♂, 1 ♀ Sapporo, Yezzo, July 1896.

1016. **D. subvaria** (Walk.).

4 ♂♂ Ningpo, Japan, July 1886 (native collectors); 1 ♀ Japan; 2 ♂♂ West China.

1017. **Diacrisia** spec.

1 ♀ labelled in Guérin's handwriting or a very similar one *Arctia indica* Guér. (type), *Mag. Zool.*, Neelgheries. (Felder coll.). This insect is certainly not the same as that called *indica* Guér. by Sir George Hampson, but appears to be an aberrant specimen of *obliqua* Walker. Guérin described what is usually known as *indica* in Delessert's *Souvenirs de l'Inde*, vol. ii. p. 93 (1843). I expect the label got placed on the present specimen during the years Felder was blind, and before he sold the collection to me.

1018. **D. intricata** (Walk.).

2 ♂♂, 1 ♀ Brazil (1 ♂, 1 ♀ Felder coll.); 1 ♀ Rio de Janeiro, Brazil; 3 ♂♂, 2 ♀♀ Castro, Parana, October 1902 (E. D. Jones); 2 ♂♂, 1 ♀ São Paulo; 3 ♂♂ Minas Geraës; 1 ♂, 1 ♀ San Jacinthe Valley, Theophilo Ottoni, Minas Geraës, 1907—1908 (F. Birch).

♂ and ♀ with no locality are probably another subspecies, the ♂ having white hindwings and the ♀ being much darker and more heavily marked.

1019. **D. alcumena** (Berg).

This is a good species, not a subspecies of *intricata*; it occurs together with that species in several parts of its range.

3 ♂♂, 7 ♀♀ Tucuman (Steinbach); 2 ♂♂, 2 ♀♀ Province of Tucuman, Argentina, January—April 1903 (G. A. Baer); 2 ♂♂, 2 ♀♀ Ciudad de Tucuman; 1 ♀ Laguna de Malginas, Tucuman, 380 m., March 1901 (Dinelli).

1019A. *D. alcumena steinbachi* subsp. nov.

♂. In place of the striated lines in the apical third of forewing as in *alcumena alcumena*, there is an irregular transverse brown band.

Hab. Buenavista, East Bolivia, 350 m., August 1906—April 1907 (J. Steinbach).

1 ♂.

1019B. *D. alcumena flavitincta* subsp. nov.

♂. Differs from *alcumena alcumena* in the great reduction of the striated lines in the outer area of forewings and in the buffy yellow inner area of hindwings.

♀. Differs in having yellow hindwings with broad central and submarginal brown bands and a broad brown transverse band on forewings beyond the median one.

Hab. Valencia and Caracas, Venezuela.

5 ♂♂, 2 ♀♀ (1 ♂ Mocquers).

1019C. *D. alcumena kennedyi* subsp. nov.

♂. Differs from *alcumena alcumena* by the yellow inner area of hindwings.

Hab. Minas Geraes.

4 ♂♂.

1020. *D. isabella* (Abbot & Smith).

4 ♂♂, 9 ♀♀? (1 ♂, 3 ♀♀ Felder coll.); 1 ♂, 1 ♀ United States (Sand coll.); 1 ♂ North America; 11 ♂♂, 7 ♀♀ Iowa, July 1896; 4 ♂♂, 1 ♀ Larima, Colorado, 5000 ft., June 1891; 2 ♂♂, 1 ♀ Colorado Springs; 1 ♂ Durango, Colorado (J. Osler); 1 ♂ Florida; 3 ♂♂, 2 ♀♀ Texas; 1 ♂ Monacknock, New Hampshire, July (F. Birch); 2 ♂♂ Canada: 1 ♂ Ontario, Canada; 4 larvae, Brooklyn, New York.

1021. *D. mombasana* spec. nov.

♂. Pectus golden; antennae black; head and thorax white; abdomen orange above, with dorsal and lateral rows of black spots.—Forewing white, four sooty dots on costa and one at base of vein 5.—Hindwing white, a sooty dot at veins 9, 5, 2, and at tornus.

Length of forewing: 25 mm.

Hab. Mombasa.

1 ♂.

1022. *D. pellucida* spec. nov.

♂. Pectus and legs buff; head and thorax buffish orange; antennae short, very strongly pectinated, brown; abdomen buff.—Forewing hyaline; costal, inner and outer margins, and nervures orange buff.—Hindwing hyaline; inner area, costal margin, and fringes orange buff.

Length of forewing: 18 mm.

Hab. Wassau District, 45 miles inland from Sekondi, Gold Coast.

1 ♂.

1023. *D. togoensis* (Bartel).

1 ♂ Akassa to Onitscha (Dr. Cook); 1 ♂ Anambara Creek; 1 ♀ Ogruga Niger River, West Africa.

1024. *D. vandepolli* spec. nov.

♂. Pectus fuscous; legs black, coxae buffy orange; palpi black, base buffy orange; head brownish buff; antennae whitish buff; thorax brownish buff with central black band; abdomen buffy orange with dorsal and lateral rows of black spots.—Forewing dark sooty brown, the basal half paler through irregular powdering of buff scales; nervures pale buff, a basal black dot, curved ante- and postmedian transverse bands of black spots.—Hindwing bright buffy orange; a cellular stigma, a spot at tornus, one on each side of vein 2 and one on vein 6 black.

♀. Pectus fuscous orange; palpi and legs brown; head orange buff; thorax fuscous buff, centre black; abdomen orange, a central and lateral rows of black spots.—Forewing clay-brown or pale wood-brown; nervures pale buff, curved ante- and postmedian transverse bands of black spots, a black spot at end of cell.—Hindwing orange with black spots, the same as in the ♂.

Length of forewing: ♂ 20 mm.; ♀ 28 mm.

Hab. Batang Proepoe, Padang Bovenlanden, 1500 m., September—October 1896.

16 ♂♂, 25 ♀♀.

There is a ♂ from Java in the British Museum of this species which is somewhat paler than the Sumatran examples.

This species was erroneously identified by Piepers and Snellen as *fuscitincta* Hmps. They describe the larva as follows: The four anterior segments pale orange, rest of body black, hairs very thickly placed and black, mixed here and there with single white hairs. Feeds on a species of fern.

1025. *Acantharctia metaleuca* Hmps.

5 ♂♂, 1 ♀ Nairobi [F. J. Jackson (1 ♂, 1 ♀ March 1905)], 6 ♂♂ Nairobi Mount Kenia, 3 ♂♂ Athi-ya-Mawe, April—May 1899 (C. S. Betton, Legros); 3 ♂♂ Machakos Rd., Kilindini, British East Africa, April 27, 1899 (Legros).

1026. *A. latifasciata* Hmps.

Differs from *metaleuca* by its golden buff ground-colour and the stronger development of the dark streaks on the hindwing.

Weenen, Natal.

1 ♂, 3 ♀♀.

1027. *A. intermarginalis* Hmps.

1 ♂ North Bailundu, Angola, 1901 (H. Pemberton).

1028. *A. vittata* Anriv.

1 ♂ Weenen, Natal.

1029. *A. atriramosa* Hmps.

1 ♂ Mohoroni, Naudi, British East Africa, July 1903 (F. J. Jackson).

1030. *A. pembertoni* spec. nov.

♂. Palpi fuscous; head yellow; antennae sooty; thorax greyish buff; tegulae edged with dark yellow; abdomen dark yellow, banded with black except on first segment.—Forewing creamy buff, nervures pale brown.—Hindwing creamy white.

Length of forewing: 21 mm.

Hab. Bihé, Angola.

2 ♂♂.

1031. *Acantharctia ansorgei* spec. nov.

♂. Palpi yellow; head and thorax cream-white; antennae, base yellow, rest pale brown; abdomen buffy orange with black rings.—Forewing creamy white, nervures black.—Hindwing creamy white, nervures yellowish brown.

Length of forewing: 22 mm.

Hab. Kaboa, Buekulla, Uganda, April 1, 1899 (Dr. Ansorge).

1032. *A. aurivillii* Bartel.

1 ♂ Uganda; 1 ♂ Songwe Valley, Lake Nyassa.

1033. *A. flavicosta* Hmps.

4 ♂♂ Kampala, Uganda (February and March 1900, Captain Rattray; March 1897, Dr. Ansorge).

1034. *A. nivea* Auriv.

1 ♂ Mikenge, Angola, September 14, 1903 (Dr. Ansorge); 3 ♂♂ Ogrugu, Niger; 1 ♂ Afilipo District, Nigeria; 1 ♂ Lagos, West Africa; 2 ♂♂ Thiès, Senegambia, July 1907 (Riggenbach).

1035. *Amsacta marginalis* Walk.

2 ♂♂ Lagos, West Africa; 9 ♂♂, 3 ♀♀ Sierra Leone (7 ♂♂, 2 ♀♀ Major Bainbridge; 1 ♀ H. A. Thorne); 4 ♂♂ Gambaga, Gold Coast (Dr. Bury) (1 ♂ buffy yellow, 2 ♂♂ intermediate); 1 ♂ Kasangazi, near Bandawe, 3000 ft., Lake Nyassa (Dr. Prentice) (this specimen is sooty black with very distinct orange margins); 1 ♂ Yelva, Borgu, Niger (Wilson) (brownish yellow).

1036. *Am. melanogastra* (Holl.).

1 ♂ west side of Luitpold Mountains, near Ikutha, 1 ♂ Athi-ya-Mawe, British East Africa, April 7, 1899 (Legros).

1037. *Am. rattrayi* spec. nov.

♂. Pectus orange and sooty brown; legs, outside orange, inside sooty brown; head and tegulae orange; thorax and antennae orange buff; abdomen above black, two basal and anal segments buffy orange.—Forewing semihyaline buff, costa, inner and outer margins buffy orange.—Hindwing semihyaline buff.

Length of forewing: 21 mm.

Hab. Entebbe, Uganda, August 1902 (Capt. Rattray).

2 ♂♂.

1038. *Am. baxteri* spec. nov.

♂. Pectus sooty brown; antennae black; head and thorax bright orange; abdomen above black, basal two segments and sides of anal segment orange.—Forewing golden orange.—Hindwing semihyaline buffish orange.

Length of forewing: 22 mm.

Hab. Mpuapna, German East Africa (Dr. Baxter).

2 ♂♂.

1039. *Amsacta ansorgei* spec. nov.

♂. Pectus, legs, head, thorax, and antennae sooty brown; abdomen yellow, a dorsal median row of black spots.—Forewing dark wood-brown, costal edge buff.—Hindwing brownish mouse-grey.

Length of forewing: 14 mm.

Hab. Kitanwa, Unyoro, August 22, 1897 (Dr. Ansorge).

1 ♂.

1040. *Am. insolata* Swinh.

1 ♂ Maymyo, Shan States, June—August 1902 (Hauxwell); 1 ♀ Kulu District; 1 ♀ ? (Felder coll.).

1041. *Am. lineola* (Fabr.).

2 ♂♂, 1 ♀ Gooty; 1 ♂, 2 ♀♀ Peermaad, Travancore; 2 ♂♂, 2 ♀♀ Bangalore, Mysore, June—August 1894 (H. J. Elwes coll.); 1 ♂ Pranchi (Irvine) (H. J. Elwes coll.); 1 ♂ Jhansi, July 1893; 1 ♂, 1 ♀ Calcutta; 1 ♂ Darjeeling (Pilcher); 4 ♂♂, 11 ♀♀ Ceylon; 1 ♂, 3 ♀♀ ? (Felder coll.); 1 ♀ Kulu District; 1 ♀ Cuddapah; 2 ♂♂, 1 ♀ Chittagong Hills; 1 ♀ Bombay.

1042. *Am. gangara* (Swinh.).

1 ♂, 1 ♀ Victoria, Australia, December (Barnard coll.).

1043. *Am. aureolimbata* spec. nov.

♂. Pectus orange; head orange; antennae black; tegulae, basal half white, rest orange; thorax white; abdomen buffy orange, dorsal and lateral rows of black spots except on basal and anal segments.—Forewing pure white, a discocellular black stigma, costa and fringe orange.—Hindwing pure white, a minute cellular brown stigma, fringe orange, inner area washed with pale orange.

♀. Similar.

Length of forewing: ♂ 25 mm., ♀ 27 mm.

Hab. Bihé, Angola (Edward Sanders).

1 ♂, 1 ♀.

1044. *Am. hampsoni* spec. nov.

♀. Pectus crimson; head creamy buff; antennae black; thorax dirty brownish buff; basal half of tegulae mauve brown; abdomen crimson, a dorsal row of black spots.—Forewing cream-colour, a black dot at end of cell and two above vein 1; costa crimson.—Hindwing white, a cellular stigma and four submarginal spots sooty black.

Length of forewing: 24 mm.

Hab. Gambaga, Gold Coast (Dr. Bury).

1 ♀.

1045. *Am. cardinalis cardinalis* (Bntl.).

1 ♂, 1 ♀ Mount Arajat, Luzon, August 1903 (Browne); 1 ♂, 1 ♀ Manilla (Lorquin) (Felder coll.); 1 ♀ Manilla, May 1903 (Browne); 1 ♂ Samar, June—July 1896 (J. Whitehead).

1045A. *Am. cardinalis celebensis* subspec. nov.

Differs from *c. cardinalis* in the much greater development of the black submarginal patches on the hindwings.

Hab. Celebes (Lorquin) (Felder coll.).

1 ♀.

1045B. *Am. cardinalis reducta* subspec. nov.

Differs from *c. cardinalis* by the submarginal patches of the hindwings being reduced to small spots.

Hab. Tomia, Toekan Besi Islands, December 1901 (H. Kühn).

3 ♀♀.

1045C. *Am. cardinalis luteomarginata* subspec. nov.

Differs from *c. cardinalis* in the entire absence of submarginal spots on the hindwing and in having the costa, collar, and edges of the tegulae yellow.

Hab. Oinainisa, Timor, December 1891 (W. Doherty), type; Letti, December, Moa, Larat, Tenimber Islands, Dammer, November 1898 (H. Kühn); Larentuka, October 1891.

8 ♂♂, 9 ♀♀.

1046. *Am. collaris* Hmps.

1 ♂ Hoi-How, Hainan, May 1902.

1047. *Am. lactinea* (Cram.).

2 ♀♀ Java; 1 ♀ West Java, 1892; 1 ♂ Mount Gedé, 4000 ft., 1896, 1 ♂ Sukabumi, West Java, 2000 ft., 1893 (H. Fruhstorfer); 1 ♂ Buitenzorg, Java, 1000 ft., August 1895 (Kannegieter); 1 ♂ G. Pontjar, Buitenzorg, Java, October—November 1897 (native collectors); 1 ♂ Palaboean; 1 ♂, 1 ♀ Sapit, Lombok, 2000 ft., April 1896 (H. Fruhstorfer); 1 ♂ Mount Arajat, Luzon, August 1903 (Browne); 1 ♀ South Flores, November 1896, dry season (A. Everett); 1 ♀ Moa (H. Kühn); 2 ♂♂, 1 ♀ Alor (A. Everett); 1 ♀ Batang Proepoe, Padang Bovenlanden, West Sumatra, 1600 m., November 1897; 1 ♂ Penang, 28 November 1898 (Curtis); 2 ♂♂ Phic-Son, Annam, November—December (H. Fruhstorfer); 1 ♂, 1 ♀ Moulmein, Burmah, August 15, 1893; 2 ♂♂ Lower Burmah; 2 ♂♂, 1 ♀ Rangoon, June 1886; 1 ♂ Assam; 3 ♀♀ Khasia Hills, Assam, May 1894 (native collectors); 1 ♂ Digboi, Assam (L. Brunt); 1 ♂ Cherrapunji, Assam, July 1893; 1 ♀ Shillong, Assam, July 1893; 1 ♂, 1 ♀ Chandkhira, Silhet; 1 ♂ Belgaum, September 1896; 1 ♂, 1 ♀ Calcutta; 2 ♂♂ Travancore (Place); 1 ♂ Nilgiris; 1 ♂, 2 ♀♀ Kulu District; 1 ♂ Thyetmyo (Elwes coll.); 6 ♂♂, 10 ♀♀ Ceylon (2 Kongahawella, July 1903, Newman; 1 Green; 2 Pundaloya); 1 ♀ N.W. India; 9 ♀♀, 1 ♂ (Felder coll.); 3 ♀♀ Buitenzorg, Java; 1 ♀ Formosa; 1 ♂, 4 ♀♀ Japan; 2 ♂♂ Ta-Chien-Tsyé, China, July 1891; 1 ♂ Chifu, Shantung, N. China; 1 ♂ Dumia Valley, Assam, June 1889; 1 ♂ Margarita, Upper Assam, May 1889 (W. Doherty) (Elwes coll.); 1 ♂ Japan (Pryer); 1 ♀ Mandi, N.W. Himalayas, 3000—5000 ft., 1883

(G. Young); 1 ♀ Sikkim, 1000—4000 ft. (Otto Möller); 1 ♂ Ganjam, 1 ♂, 2 ♀♀ Bangalore, Mysore; 1 ♀ Nagpore; 1 ♀ Khasia Hills, Assam, 4000 ft., September 1886 (H. J. Elwes) (H. J. Elwes coll.); 2 ♀♀ Asia (Meyer coll.).

1048. *Am. negrita* (Hmps.).

5 ♂♂, 4 ♀♀ Khasia Hills, Assam, 1894—1896 (native collectors) (2 ♀♀ H. J. Elwes coll.); 2 ♂♂, 1 ♀ Cherrapunji, Assam, April—August 1893.

1049. *Am. albistriga* (Walk.).

2 ♂♂ Cuddapah; 1 ♂ Gohalpoore, June 1882 (H. J. Elwes coll.).

1050. *Am. marginata marginata* (Don).

1 ♂ Derby District (Tunny); 2 ♂♂, 1 ♀ Roebourne; 3 ♂♂, 1 ♀ Sherlock River, West Australia (Clements); 3 ♂♂, 1 ♀ Brisbane (Felder coll.); 1 ♂ New South Wales; 2 ♀♀ Paramatta, New South Wales (Pb. Schrader); 9 ♂♂, 2 ♀♀ Queensland; 1 ♂, 1 ♀ North Queensland; 1 ♂, 1 ♀ Port Mackay, Queensland; 1 ♂ Port Darwin; 2 ♀♀ Dawson District (Barnard coll.); 6 ♂♂, 2 ♀♀ Cedar Bay, North Queensland (A. S. Meek).

1050A. *Am. marginata punctipennis* (Bntl.).

1 ♂ Lower Aroa River, British New Guinea, November 1904 to February 1905 (A. S. Meek); 1 ♂ Mailn, British New Guinea (A. S. Anthony); 1 ♂ Redscar Bay, British New Guinea (Lix); 3 ♂♂ St. Joseph River, 2 ♂♂ Welsh River, 1 ♂, 1 ♀ Aroa River, British New Guinea (Weiske); 1 ♀ Milne Bay, February 1899, 1 ♀ Samarai, 1 ♂ Haidana, Collingwood Bay, April 1907, 1 ♀ Kumusi River, July 1907, British New Guinea (A. S. Meek); 2 ♂♂, 1 ♀ Holnicote Bay to Owen Stanley Range (Rohn); 2 ♂♂, 1 ♀ Astrolabe Bay, March—September (C. Wahnes), 3 ♂♂, 1 ♀ Constantinhafen, 1 ♂ Simbang, June 1893, German New Guinea; 1 ♂, 1 ♀ Woodlark Island, April 1897 (A. S. Meek).

3 ♂♂, 2 ♀♀ have the crimson replaced by yellow.

1051. *Am. moorei* (Butler).

9 ♂♂, 2 ♀♀ Ajmere, July 1892; 1 ♂ Cuddapah.

1 ♂ has all the crimson replaced by yellow; another has all the crimson except on abdomen yellow.

1052. *Am. corsina* (Swinh.).

1 ♀ Salisbury Plains, north of Bowen, Queensland (A. Simson).

1053. *Creatonotus marginalis* (Walk.).

5 ♂♂, 2 ♀♀ Moyamba, Sierra Leone, March—May 1902 (D. Cator); 1 ♂, 2 ♀♀ Sierra Leone; 1 ♂ Benin City, Nigeria, January 1, 1900 (Dr. Anson); 1 ♂, 4 ♀♀ Ogrugu, Niger; 2 ♂♂, 1 ♀ Gambaga, Gold Coast (Dr. Bury).

1054. *C. vittata* (Drnce).

1 ♂ Lokoja, River Niger, October 1904, rainy season (D. Cator); 1 ♀ Moyamba, Sierra Leone (D. Cator).

1055. *C. flavidus* Bartel.

1 ♂ Okovango River, Angola, December 1899 (Penrice).

1056. *C. gangis* (Linn.).

1 ♂ Sonth Java, 1500 ft., 1891 (H. Fruhstorfer); 1 ♂ Djember, Besoeiki Residency, Java, 1300—1500 ft., 1892 (Möllinger); 3 ♀♀ Wynkoopsbaai, Palaboean Ratoe, Java (H. Fruhstorfer); 1 ♂ Boitenzoit, Java; 1 ♂ Kandang Ampat, 1 ♂ Mount Talang, Padang Bovenlanden, West Central Sumatra; 1 ♂ Benkoelen, 1 ♀ Loeboe Rajah, West Sumatra (Ericsson); 1 ♂ Hili Madjedja, North Nias, September—December 1895; 1 ♀ Mount Sapit, 2000 ft., Lombok, May—June 1896 (H. Fruhstorfer); 1 ♂, 1 ♀ Bogor, 1000 m., May—June 1896 (T. Z. Kannegieter); 1 ♀ Tji Kidang; 6 ♂♂ Tambora, Sumbawa, 2500—4000 ft., April—June 1896; 2 ♂♂, 1 ♀ Sambawa, September 1891; 1 ♂ Adonara, November 1891 (W. Doherty); 1 ♂ South Flores, November 1896, dry season (A. H. Everett); 1 ♂ Selaru, January 3, 1897 (Micholitz); 3 ♂♂ South Celebes, August—September 1891 (W. Doherty); 1 ♂ Banda, July 26, 1904; 1 ♂, 1 ♀ Port Darwin; 5 ♂♂, 9 ♀♀ Queensland; 1 ♂ North Queensland; 2 ♂♂, 2 ♀♀ Geraldton, 1 ♂, 1 ♀ Cedar Bay, North Queensland (A. S. Meek); 1 ♀ Cairns, North Queensland; 1 ♂ Mulgarry River, 1 ♀ Townsville, Queensland (Barnard coll.); 5 ♀♀ Mackay, Queensland; 2 ♀♀ Mount Dryander, Queensland; 1 ♀ Mount Arajat, Luzon, August 1903 (Browne); 2 ♂♂ Mount Tahan, Malay Peninsula (Waterstradt); 3 ♂♂ Perak; 5 ♂♂, 6 ♀♀ Penang, December 1896—April 1898 (Curtis); 3 ♂♂, 3 ♀♀ Lower Burma; 1 ♀ Chien-Hoa, August, 1 ♂ Maussion Mountains, 2000—3000 ft., April—May (H. Fruhstorfer); 15 ♂♂, 16 ♀♀ Ceylon; 4 ♂♂, 1 ♀ Kandy, Ceylon (4 ♂♂, January 1902, N. Charles Rothschild and Francis Gaynor); 5 ♂♂, 1 ♀ Pundaloya, Ceylon; 1 ♀ Patipall River, Ceylon, April (this specimen has almost entire forewings black); 2 ♂♂, 3 ♀♀ Diyatalawa Camp, 4200 ft., Ceylon (Findlay); 5 ♂♂, 5 ♀♀? (Felder coll.; one ex Van Lenep coll. figured by Cramer).

1057. *C. leucanoides* Holl.

2 ♂♂ Yelwa, Borgu, Niger (Capt. Wilson); 1 ♀ Inenge Country, Gaboon, November 29, 1907 (Dr. Ansorge).

1058. *C. punctivitta* (Walk.).

1 ♀ Natal (A. J. Spiller).

1059. *C. transiens* (Walk.).

2 ♂♂, 1 ♂ Naga Hills, Assam, 5500—7000 ft., September—October 1889 (W. Doherty); 1 ♀ Margarita, Upper Assam, May 1889 (W. Doherty); 1 ♂, 3 ♀♀ Mandi, N.W. Himalayas, 3000—5000 ft., 1883 (G. Young); 1 ♂ Moneit (W. Doherty); 1 ♂ Darjeeling, 7500 ft., May—June 1889 (A. V. Knyvett); 1 ♂ East Pegu, 500—4000 ft., March—April 1890 (W. Doherty); 1 ♂, 1 ♀ Sikkim, March 1888 (Otto Möller); 2 ♂♂ Mongpo Gamie, Sikkim; 1 ♂ Bangalore, September (H. J. Elwes coll.); 1 ♂?; 6 ♂♂, 1 ♀ Darjeeling (F. Möller); 2 ♂♂, 2 ♀♀ Okinawa, Loo Choo Islands (1 ♂ March 9, 1902, A. W. Waters, N. Charles Rothschild; 1 ♂, 2 ♀♀ March 1891, Dr. Fritze); 4 ♂♂, 5 ♀♀ Loo Choo Islands, June—August 1886; 1 ♂ Omei-Shan, West China; 3 ♀♀ Cheng-Mai, Hainan,

July 1902; 1 ♀ Luzon (Dr. Meyer); 2 ♂♂, 2 ♀♀ Kina Balu, N. Borneo; 8 ♂♂, 4 ♀♀ Mount Mulu, North Borneo, 1000—4000 ft., August—December 1904 (Charles Hose); 1 ♀ Lawas, April 1892, 1 ♀ Sarawak, North Borneo (A. Everett); 1 ♂, 1 ♀ Sandakan, Borneo (Pryer and Cator); 1 ♂ Baram District, Sarawak (Charles Hose); 1 ♀ Mount Marapok, Dent Province, British North Borneo; 1 ♀ Kuching, Borneo; 2 ♂♂ Sarawak (Felder coll.); 3 ♂♂ Bunguran, Natuna Islands, July—October 1894 (Charles Hose); 1 ♂ South Celebes, August—September 1891 (W. Doherty); 2 ♂♂ North Celebes; 1 ♂ Indralaman, Bonthain Peak, South Celebes, 2300 ft., October 1895 (A. Everett); 1 ♀ Ramboekers, Tondano, Celebes (Weigall); 2 ♀♀ Menado, North Celebes; 1 ♂ Tambora, 2500—4000 ft., April—May 1896 (W. Doherty); 1 ♂ Sapit, Lombok, 2000 ft., April 1896 (H. Fruhstorfer); 1 ♀ Java; 1 ♂ Mount Arjuno, Java (W. Doherty); 1 ♀ Djember, Besoeeki Residency, Java, 1300—2000 m., 1891 (Möllinger); 1 ♂ Padang Sidempoean, 3 ♂♂ Loeboe Rajah, West Sumatra, July—September 1897 (Ericsson); 1 ♂ Mount Talang, Padang Bovenlanden, West Sumatra; 1 ♀ Upper Palembang District, Sumatra; 1 ♂ Nias Island; 1 ♀, 1 ♂ Padang Rengas, Sumatra; 2 ♂♂, 3 ♀♀ Penang, November 1896—January 1897; 1 ♂ Malay Peninsula (Adams); 1 ♀ Pha-Hang, South Annam, 1 ♀ Chien-Hoa, Central Tonkin, August—September (H. Fruhstorfer); 1 ♀ Tonngoo, November 16, 1890; 1 ♀ Moulmein; 1 ♂ Upper Churdwiss District, Burma; 2 ♂♂ Cherrapunji, Assam, August—October 1893; 5 ♂♂, 9 ♀♀ Khasia Hills, Assam, February—July 1894 (native collectors); 10 ♂♂, 1 ♀ Digboi, Assam (Mr. Brant); 4 ♂♂, 1 ♂ Darjeeling, Sikkim (1 ♂ F. Möller, 1 ♀ J. G. Pilcher); 6 ♀♀ Bhutan; 4 ♂♂, 5 ♀♀ Kulu District; 1 ♂ Kumaon, August 1892 (J. G. Pilcher); 1 ♂ North-West India; 4 ♂♂, 1 ♀ Penmgah, N. Borneo, December 1893; 2 ♂♂ Chittagong Hills; 2 ♂♂, 1 ♀ Calcutta; 5 ♀♀ Nilgiris; 6 ♂♂, 4 ♀♀? (Felder coll.); 1 ♂ Mount Tahan, Malay Peninsula (J. Waterstradt); 1 ♂ Maymyo, Shan States, June—August 1902 (Hauxwell); 1 ♀ Porten, Hainan, July 1904; 1 ♂, 8 ♀♀ Mount Maropok, Dent District, British North Borneo; 1 ♀ Baram District, Sarawak (Charles Hose); 6 ♂♂, 1 ♀ Batang Proepoe, Padang Bovenlanden, West Sumatra, 1600 m., April 1896; 1 ♀ Haiphong (Buckland); 1 ♀ Patjar, Buitenzorg, Java, October—November 1897 (native collectors); 1 ♀ Pangetalam, Dempo Government, Palembang, 2000—3000 ft., 1890 (T. Z. Kannegieter); 1 ♀ Palaboean; 1 ♂, 1 ♀ Soekapoerakolot, Preanger, Java, March—May 1899 (native collectors); 1 ♀ Hong-Kong; 1 ♀ Tambora, 2500—4000 ft. (W. Doherty).

1060. *Hyphantria cunea* (Drury).

8 ♂♂? (2 ♂♂ Felder coll.); 2 ♂♂ New Hampshire, 1 ♂ New York, 1 ♂ Florida (Meyer coll.); 3 ♂♂ New Windsor, New York; 3 ♂♂ New York; 6 ♂♂, 1 ♀ Texas; 1 ♂ Iowa; 2 larvae.

1061. *Estigmene interfixa* (Walk.).

2 ♂♂ Billop, February 1888; 1 ♂?

1062. *E. imbuta imbuta* (Walk.).

1 ♂ Kumaon, July 1893 (J. G. Pilcher); 1 ♂, 2 ♀♀ Dalhousie, July 1891; 1 ♀? (H. J. Elwes coll.).

1062A. *E. imbuta sikkimensis* subsp. nov.

Differs from *im. imbuta* by the much fewer and smaller white patches on the forewing and black underside of abdomen.

Hab. Sikkim, 4000—7000 ft., June 1889 (Otto Möller); Darjeeling (H. J. Elwes) (H. J. Elwes coll.); Darjeeling (Dr. Lidderdale); Sikkim; Bhutan.

7 ♂♂, 2 ♀♀.

1062B. *E. imbuta khasiana* subsp. nov.

Differs from *im. imbuta* by its entirely black hindwings with narrow white edges, and in the nervures of forewings being bright orange, and those of hindwings yellow.

Hab. Khasia Hills, Assam, May 1894–96 (native collectors) (1 ♂, 1 ♀, H. J. Elwes coll.).

4 ♂♂, 1 ♀.

1063. *E. florescens* (Moore).

1 ♂, 1 ♀ ? (Felder coll.); 1 ♂, 1 ♀ Sikkim, 7000 feet, 1889 (♂ Otto Möller; ♀ A. V. Knyvett, H. J. Elwes coll.); 3 ♂♂, 5 ♀♀ Khasia Hills, Assam, May 1894–96 (native collectors) (1 ♂ H. J. Elwes coll.); 1 ♂ Cherrapunji, Assam, September 1893.

1064. *E. dissimilis* (Dist.).

1 ♀ Weenen, 1 ♂ Mooi River, 1 ♀ Natal; 1 ♀ Transkei, Cape Colouy (Miss Barrett).

1065. *E. unipuncta* Hmps.

1 ♂ Bihé, 2 ♂♂ Ambaca, 1 ♂ Cubal River, Angola, April 1899 (Dr. Ansorge).

1066. *E. tenuistrigata* (Hmps.).

5 ♂♂ Nairobi to Mount Kenia; 1 ♂, 1 ♀ Nairobi, British East Africa, 2 ♂♂, 3 ♀♀ Entebbe, Uganda (F. J. Jackson); 1 ♀ Kiknyu District; 1 ♀ Talala, Benguella, December 1, 1905 (Dr. Ansorge).

1067. *E. lemniscata* (Dist.).

1 ♂ Transvaal; 1 ♂ Barberton, South-East Africa (Dr. Percy Rendall).

1068. *E. scita* (Walk.).

2 ♂♂ Lagos, West Africa; 1 ♂ Coast Region, Niger River; 2 ♂♂, 1 ♀ Anambara Creek, Niger River; 1 ♂ Kibero, Unyoro, August 18, 1897 (Dr. Ansorge); 1 ♂ Ase, Niger, August 4, 1901 (Dr. Ansorge); 1 ♂, 2 ♀♀ Ogrugu, Niger; 3 ♂♂, 1 ♀ Warri, Niger, April to July 1897 (Dr. Roth); 2 ♂♂ Stanley Pool to Lnkolele, Congo, 1894 (Harrison); 1 ♂ Akasa, Niger; 1 ♀ Lokoja, Niger, October 1904, rainy season (D. Cator); 1 ♀ Sekondi, Gold Coast (N. T. Hamlyn); 2 ♂♂ Gambaga, Gold Coast (Dr. Bury).

1069. *E. pembertonii* spec. nov.

♂. Pectus and head smoky grey; antennae pale buffy brown; thorax lemon buff; abdomen smoky buff.—Forewing lemon buff, a brown band from base almost to outer margin near vein 6, a submarginal row of minute brown points, an obscure brown streak between veins 2 and 4.—Hindwing cream white.

Length of forewing : 16 mm.

Hab. Bailundu, Angola, 1901 (H. Pemberton).

2 ♂♂.

1070. *E. rothi* spec. nov.

♂. Pectus, legs, palpi, head, and antennae sooty ; thorax and abdomen buffish clay.—Forewing buffy clay, median vein (3) black.—Hindwing whitish clay-buff.

Length of forewing : 15 mm.

Hab. Warri, Niger, June 1897 (Dr. Roth).

1 ♂.

1071. *E. laglaizei* spec. nov.

♀. Head brownish buff ; antennae brown-black ; thorax brown-buff ; a central blackish line ; abdomen buffish orange, a central row of black spots.—Fore- and hindwings brown-buff.

Length of forewing : 18 mm.

Hab. Casamance, Senegambia (Laglaize).

1 ♀.

1072. *E. liparidioides* spec. nov.

♂. Head and thorax buffy lemon ; antennae pale golden brown ; abdomen orange.—Forewing buffy lemon, a central blackish brown band from base to outer margin at vein 4, a shorter one from centre of vein 8 along 6 to outer margin, and a short subapical one on vein 9.—Hindwing cream white.

Length of forewing : 17 mm.

Hab. Nairobi to Mount Kenia.

1 ♂.

1073. *E. ansorgei* spec. nov.

♂. Head and thorax buff ; antennae black ; abdomen orange buff.—Forewing buff, veins pale brown.—Hindwing buff.

♀ similar.

Length of forewing : 18 mm.

Hab. Mtanda, Usogo, December 1896, Kampala, Uganda, January 1897 (Dr. Ansorge).

1 ♂, 1 ♀.

1074. *E. unilinea* spec. nov.

♂. Pectus and head pale sooty wood-brown ; antennae black ; thorax pale chamois-brown ; abdomen chamois-buff with transverse black patches.—Forewing pale chamois-brown with broad central band of olive-black from base almost to outer margin along veins 3 and 4.—Hindwing pale chamois-buff.

Length of forewing : 16 mm.

Hab. Anambara Creek, Niger, type ; Warri, Niger, July 1896 (Dr. Roth) ; Ogrugu, Niger ; Ase, Niger, August 1901 (Dr. Ansorge) ; Lokoja, Niger, October 1904, wet season (D. Cator) ; Sierra Leone ; Bathurst ; Casamance, Senegambia (Laglaize) ; Thiès, Senegambia, July 1907 (W. Riggenschach).

16 ♂♂, 2 ♀♀.

1075. *E. neuriastis* (Dist.).

1 ♂, 1 ♀ Bihé, Angola (♂ Edward Saunders ; ♀ H. Pemberton).

1076. *E. similis* spec. nov.

♂ Pectus, head, and thorax buff, tegulae with orange edges; antennae, shafts buff, pectinations black; abdomen orange with transverse black lines.—Forewing buffy yellow.—Hindwing pale whitish buff.

Length of forewing: 19 mm.

Hab. Ukerewe, Victoria Nyanza.

1 ♂.

1077. *E. edlingeri* (Bartel).

4 ♂♂, 7 ♀♀ Agberi, Niger, July 1901 (Dr. Ansorge); 2 ♀♀ Lokoja, October 1904, wet season (D. Cator); 2 ♀♀ Assaba (Dr. Crosse); 1 ♀ Anambara Creek, Niger; 1 ♀ Lagos, West Africa; 1 ♀ Canhoca, Angola (Dr. Ansorge).

1078. *E. schraderi* spec. nov.

♂. Head and thorax white, with a black dot in centre of tegulae and patagia; antennae black; abdomen orange, basal and anal segments white, a median dorsal and lateral rows of black spots.—Forewing white with numerous black dots.—Hindwing white.

♀ similar.

Length of forewing, 15 mm.

Hab. Salomona, Eritrea, November to December 1897 (Schrader); Bogos (Hansal) (Felder coll.).

2 ♂♂, 1 ♀.

1079. *E. jacksoni* spec. nov.

♂. Pectus sooty orange; head white; antennae white, pectinations short, sooty; tegulae white with yellow edges; thorax white, each of the patagia with two black dots; abdomen yellow with semi-hidden narrow black rings, basal segment and clasper tufts white.—Forewing semihyaline white, a submarginal row of a few scattered discal spots black.—Hindwing semihyaline white.

Length of forewing: 21 mm.

Hab. Entebbe (F. J. Jackson), Kampala, March 1900, Uganda (Captain Rattray).

1080. *E. linea* (Walk.).

40 ♂♂, 2 ♀♀ Transkei, 18 ♂♂, 3 ♀♀ Amshaw, Cape Colony (Miss Barrett); 7 ♂♂ Grahamstown, Cape Colony; 1 ♀ Knysna; 11 ♂♂, 1 ♀ Natal (A. J. Spiller); 3 ♂♂, 1 ♀ Natal; 2 ♂♂, 1 ♀ Durban, Natal (G. F. Leigh); 1 ♂ Newcastle, Natal (Donovan); 9 ♂♂, 2 ♀♀ Weenen, Natal; 1 ♂ Mooi River, Natal; 1 ♂ Pietermaritzburg; 1 ♀ Shilovane, Transvaal (H. Junod); 1 ♂ South Africa; 1 ♂ Ngqeleni, West Pondoland, February 27, 1903; 1 ♂ Barberton, S.E. Africa (Dr. Percy Rendall).

1081. *E. multivittata* spec. nov.

♂. Pectus, legs, and antennae brown; head and thorax pale greyish cinnamon; base of patagia black; abdomen, basal segment pale greyish cinnamon, rest dirty yellow with semi-concealed dorsal and lateral rows of black spots.—Forewing pale greyish buffy cinnamon, margins darker, all the nervures within very broad black bands.—Hindwings whitish buff.

♀ has forewings and thorax dark cinnamon brown, and the black nervular bands are so wide that several coalesce and almost cover the disc.

Length of forewing : ♂ 17 mm.; ♀ 18 mm.

Hab. Lake Nakuru, British East Africa, March 1898 (Dr. Ansorge); Nairobi, British East Africa, March—April 1905 (F. J. Jackson); Nairobi to Mount Kenia.

12 ♂♂, 3 ♀♀.

Some of the Nairobi ♂♂ have the forewings almost as dark in ground-colour as the ♀♀. This is the insect described by Sir George Hampson as *Estigmene linea*, subspec. 1.

1082. *E. trivitta* (Walk.).

1 ♂, 1 ♂ Caiala, Bihé, Angola, October 1904 (Dr. Ansorge); 1 ♀ Mpetu, Loangwa River, affluent of Zambesi River, November—December 1895, wet season (Coryndon); 1 ♀ Kasangazi, Baulawe, Lake Nyassa, 3000 ft. (Dr. Prentice); 1 ♂, 1 ♀ South Africa; 1 ♂ Mooi River, Natal; 1 ♀ Umbilo, Natal, March 1907 (G. F. Leigh); 1 ♂, 1 ♀ Nairobi, March—June 1905 (F. J. Jackson).

1083. *E. quadriramosa* (Koll.).

11 ♂♂ Dalhousie, June—July 1891 (1 ♂ H. J. Elwes coll.); 3 ♂♂ Kulu District; 1 ♂?, 1 ♂, 1 ♀ Kangra (Hocking) (H. J. Elwes coll.); 1 ♂ Allahabad, N.W. India; 1 ♀ Kumaon, July 5, 1893 (J. G. Pilcher); 1 ♀ ? (Felder coll.).

1084. *E. pura* Bntl.

5 ♂♂, 4 ♀♀ Mpuapna, German East Africa (3 ♀♀, 1 ♂ Dr. Baxter); 1 ♂ Mruli, Unyoro, May 1897 (Dr. Ansorge).

1085. *E. acraea acraea* (Drury).

1 ♂ ex larva found at Philadelphia; 1 ♂, 1 ♀ Cambridge, Massachusetts, June to August 1898 (Webster); 1 ♂ Georgia (Buehcker coll.); 1 ♂, 1 ♀ Florida; 1 ♂ Montreal to Quebec (Grapes); 2 ♂♂, 2 ♀♀ Canada; 1 ♀ Nelson, British Columbia, June 1903; 1 ♀ Colorado (suffused with sooty); 14 ♂♂, 4 ♀♀ Iowa, June 1897—August 1898; 6 ♂♂, 1 ♀ Colorado; 9 ♂♂, 1 ♀ Larima, Colorado, 5900 ft., July 1891; 4 ♂♂, 3 ♀♀ Glenwood Springs, June 1901, 5 ♂♂, 5 ♀♀ Denver, 4 ♂♂, 6 ♀♀ Durango, Colorado (E. J. Osler); 1 ♂?; 1 ♀ United States of America; 7 ♂♂, 4 ♀♀ (Felder coll., 2 ♂♂, 1 ♀ Rhode Island; 1 ♂ ex coll. Lenep, type of Cramer's *caprotini*); 7 larvae.

1085A. *E. acraea dubia* (Walk.).

4 ♂♂ Nova Scotia.

1085B. *E. acraea arizonensis* subsp. nov.

Differs from *acraea mexicana* by the ♂♂ always being white and both sexes being more heavily spotted on the wings and the black bars on abdomen longer and wider than in typical *a. mexicana*.

Hab. Nogales, Arizona, July 1903 (E. J. Osler).

9 ♂♂, 5 ♀♀

1085c. *E. acraea mexicana* (Walk.).

4 ♂♂, 2 ♀♀ Orizaba, Mexico, January—April 1896 (W. Schaus); 1 ♀ Guadalupe, Mexico (Buller); 1 ♂, 1 ♀ Jalapa, Mexico; 1 ♂, 1 ♀ Vera Cruz, Mexico; 6 ♂♂, 2 ♀♀ Cuernavaca, Mexico, July—September 1894 (Dr. Gadow); 6 ♂♂, 7 ♀♀ Mexico (Felder coll., 1 ♂, 1 ♀ Cuernavaca); 1 ♀ Ciudad de Guatemala (Rodriguez).

1085d. *E. acraea columbiana* subsp. nov.

Differs from *A. arizonensis* in the ♂ by having only a marginal row of black spots and a small black cellular stigma on fore- and hindwings, and in the ♀ having pure white wings with two very minute black specks at end of cell and a minute black speck above vein 1 in the forewings.

Hab. Popayan, Colombia (Lehmann); 1 ♂ Santa Rita, 1 ♂ Espejuelo, Cali, Cauca Valley, April—May 1906 (Payne & Brinkley).

13 ♂♂, 1 ♀.

1085e. *E. acraea alba* (Stretch).

14 ♂♂, 3 ♀♀ Costa Rica (Underwood); 2 ♂♂ San José, 1 ♂ Asahar de Cartago, February 1899 (Underwood); 1 ♂ Costa Rica, 1500 m. (M. de Mathan).

1086. *E. ceylonensis* Hmps.

2 ♂♂, 1 ♀ Shevaray Hill, 4000 ft.

1087. *E. irregularis* (Moore).

1 ♂, 3 ♀♀ Ceylon.

1088. *E. perrotteti perrotteti* (Guér.).

1 ♂ Ganjam (H. J. Elwes coll.); 1 ♂ Travancore (Place); 1 ♂, 1 ♀ Belgaum, July—August 1895; 2 ♂♂ Palli Hill, Bandera, July 1897; 1 ♀ Sabathu, Simla; 1 ♀ Bombay; 1 ♀ Poona, 1893 [ab. *nigricans* (Moore)].

1088a. *E. perrotteti cingulata* subsp. nov.

Differs from *p. perrotteti* in the much more woolly thorax, the black patagia with pale pink edges, and the black abdomen above ringed with carmine.

Hab. Ooty.

1 ♂.

This may be a distinct species.

1089. *E. vittata* (Moore).

2 ♂♂ Madura District, South India, March—June 1906 (H. Campbell); 6 ♂♂, 1 ♀ Peermaad, Travancore; 3 ♂♂ Travancore (Place); 5 ♂♂, 2 ♀♀ Nilgiris; 1 ♂ (ex coll. Felder) labelled "*Chelonia Perrotteti* Guér. Ic. R. Anim. (type)." If this is true, what has hitherto been called *perrotteti* must be called **biguttata** Moore, and *vittata* Moore sinks as a synonym of **perrotteti**. 2 ♂♂ Rangoon; 4 ♂♂, 1 ♀ Sevan Malley; 1 ♂ Palni Hill.

1090. *Pericallia aequata aequata* (Walk.).

2 ♂♂, 1 ♀ South Celebes, August—September 1891 (W. Doherty); 1 ♂ ?; 1 ♀ Bantemoerung, South Celebes, September 12, 1882 (C. Ribb  ); 1 ♀ Patumiang, South Celebes, January 1896 (H. Fruhstorfer); 2 ♀♀ Maros, South Celebes, May 1906—January 1907 (Dr. Martin); 1 ♀ Makassar, December 1906 (Dr. Martin).

1090A. *P. aequata lorquini* (Feld.).

This form from North Celebes is a very distinct subspecies; it differs from *aequata aequata* in the ♂ by the basal two-thirds of the hindwings being orange and the outer one-third black; not black with a central orange band. The ♀ differs by the orange band of the hindwings being double the width.

3 ♂♂, 1 ♀ ?; 2 ♀♀ Tawaya, north of Palos Bay, August—September 1896 (W. Doherty); 3 ♀♀ North Celebes, July—August 1899; 1 ♀ Sawangan, North Celebes; 1 ♀ type of *Arctioneura lorquini* (Felder coll.).

1091. *P. everetti* spec. nov.

♂. Larger than *aequata*; pectus orange; head and antennae black; legs sooty brown; tegulae black bordered with orange; rest of thorax sooty brown-black; abdomen above sooty brown-black, a broad lateral orange band and last three segments before anal segment very narrowly ringed with orange.—Forewing sooty black-brown, veins paler, a buff patch reaching from costa across apex of cell.—Hindwing orange, a heavy black border brown-black one-third the width of the wing; an irregular median brown-black band of varying width reaches from inner area to costa.

Length of forewing: 22 mm.

Hab. Indrnlaman, Bonthain Peak, 2300 ft., October 1895 (A. Everett).

1 ♂.

1092. *P. ricini* (Fabr.).

13 ♂♂, 20 ♀♀ Ceylon (2 ♂♂, 1 ♀ Nietner, ex Felder coll.; 4 ♂♂, 1 ♀ Pundalaya; 1 ♀ ?, 1 ♀ Dambulla, 1 ♀ Kandy, Newman; 3 ♀♀ Green, ex H. J. Elwes coll.; 1 ♀ Diyatalawa Camp, 4200 ft., Findlay); 1 ♀ Trincomalee, March 10, 1901; 3 ♂♂, 1 ♀ Travancore (Place); 1 ♂, 5 ♀♀ Nilgiris; 1 ♂, 1 ♀ Calicut, May—July 1897; 1 ♂ Calcutta; 1 ♂ Poona, 1893; 1 ♀ Bombay; 1 ♀ Mea Mea, August 14, 1890; 1 ♀ Palli Hill, Bandora, September 22, 1896 (yellow hindwing); 1 ♀ Chota; 1 ♂ Ranchi (Irvine), 1 ♂ Ganjam, 2 ♀♀ Bangalore, 1 ♀ Rajahmundry, Godavery, October 1882 (Norris); 1 ♀ Belgaum, 2 ♀♀ Bombay, October 1892, 1 ♀ Khasia Hills, Assam (Hamilton) (H. J. Elwes coll.), last four with yellow hindwing; 1 ♀ Ajmere, September 1, 1892; 1 ♀ Sikkim; 1 ♂ Darjeeling (J. G. Pilcher); 3 ♀♀ Chandkhira, Silhet; 1 ♂ Sabathn, Simla; 3 ♂♂, 8 ♀♀ (Felder coll., 1 ♂, 2 ♀♀ yellow hindwings; 1 ♀ Stoliczka); 1 ♀ Cuddapah; 1 ♀ Madras, August 3, 1889.

1093. *P. transversa* (Moore).

1 ♂, 1 ♀ Murree, N.W. India. Moore's type, hitherto unique, has lost the abdomen, I therefore give the description here. Abdomen crimson, a dorsal row of transverse black bands and lateral rows of black spots; anal segment white with large black patch.

1094. *P. sjoestedti* (Auriv.).

1 ♂ Wassan District, 45 miles inland from Sekondi, Gold Coast.

1095. *P. lasti* spec. nov.

♂. Pectus, legs, head, and antennae black; collar red; thorax black; abdomen crimson, first segment black, a dorsal row of black spots, anal tuft yellow.—Forewing black, an oblique white band from centre of costa to vein 1 just before tornus.—Hindwing black, a round white patch on vein 2.

♀. Differs in having abdomen below entirely yellow, **not** black edged segmentally with yellow, and in having **two** white patches on hindwing.

Hab. Morondava, Madagascar (Last).

1 ♂, 1 ♀.

1096. *P. dulla dulla* (Pagenst.).

Dr. Pagenstecher described this species under the name of *Agarista dulla* in 1886, in the *Jahrbücher des Nassauischen Vereins für Naturkunde*, but it is undoubtedly an *Aretiid*, and fits best into the genus *Pericallia*. Sir George Hampson places it among the unrecognised species, and quite rightly so, as he had never seen it.

1 ♀ Kei Toal, Kei Islands, March 1, 1896 (H. C. Webster).

1096A. *P. dulla aurantiaca* subspec. nov.

♀. Differs from the ♀ of *d. dulla* by the bands of the forewing being of a bright rufous orange, and the patch on the hindwing reaching the tornus and the fringe.

Hab. Kapaur, S.W. New Guinea.

1 ♀.

1096B. *P. dulla borealis* subspec. nov.

♂. Pectus, legs, and head pale orange; antennae fuscous and strongly pectinated; thorax pale orange, centre blackish, a black dot on the tegulae; abdomen above black, below pale orange, anal tuft orange.—Forewing orange, outer third black, the black running along subcostal to middle of cell, a very broad black band from base along vein 1 to just before tornus; joined to this band is a black patch **below** vein 1 just before tornus.—Hindwing black, with broad orange margin becoming narrower towards tornus.

♀ Differs from ♀ *d. dulla*, the orange patch on hindwing being much larger, wedge-shaped, and reaching obliquely from tornus to vein 6, and in having a small terminal orange patch to hindwing.

In the 2 ♀♀ from Humboldt Bay one has the terminal orange spot much enlarged; in the other it is absent.

Hab. Dorey, North-West New Guinea, June 1897; Humboldt Bay, North-West New Guinea, September—October 1893 (W. Doherty).

1 ♂, 5 ♀♀.

1097. *P. nephelistis* Hmps.

9 ♂♂, 2 ♀♀ Bihé, Angola (4 ♂♂, October 1901, H. Pemberton; 5 ♂♂, 2 ♀♀ May—November 1902, Edward Sanders); 1 ♂ North Bailundu, Angola, 1901 (H. Pemberton); 1 ♂ Loanda, Angola (Welwitsch) (Felder coll.); 6 ♂♂, 3 ♀♀ Pungo Andongo, March—June 1875 (A. von Homeyer).

1098. *P. picta* (Walk.).

2 ♂♂ Cheng-Mai, Hainan, July 1902 (one has red replaced by yellow); 1 ♂, 1 ♀ Moulmein: 1 ♂ Siam, 1890-91 (Roberts).

1099. *P. geometrica* (Oberth.).

1 ♀ Addis Abeba, Abyssinia, October 15, 1900 (Oscar Neumann).

1100. *P. ellioti* (Butler).

2 ♂♂, 2 ♀♀ Mauow, German East Africa.

1101. *P. dentata* (Walk.).

3 ♂♂ Palli Hill, Bandora, July 13, 1896.

1102. *P. pannosa* (Moore).

1 ♀ Kulu.

1103. *P. sipahi* (Moore).

1 ♂, 2 ♀♀ Bombay.

1104. *P. imperialis* (Koll.).

4 ♂♂ Kulu District; 2 ♂♂, 1 ♀? (Felder coll.); 1 ♂ Randakeit, North-West India (Mansfield); 1 ♀ Darjeeling (H. J. Elwes coll.); 1 ♀ India (Meyer coll.).

1105. *P. galactina galactina* (Hoev.).

1 ♀? (Felder coll.); 2 ♂♂ Palaboean, South Java, 1892 (H. Frnhstorfer); 1 ♂, 1 ♀ Java; 2 ♂♂ West Java; 1 ♂, 1 ♀ Mount Arjuno, Java (W. Doherty) (H. J. Elwes coll.).

This is Sir George Hampson's "Subspecies 1," but is the typical form.

1105A. *P. galactina trigonalis* (Voll.).

This name has priority over Druce's *cana*. It is a good subspecies and **not** an aberration.

1 ♂, 2 ♀♀ Batang Proepoe; 1 ♀ Padang Pandiang, Padang Bovenlanden, West Central Sumatra, 1897 (T. Z. Kunnegieter); 1 ♀ Deli, North-East Sumatra; 1 ♀ Fort de Koek, Sumatra; 2 ♀♀ Sumatra; 1 ♂, 1 ♀ Government Hill, Penang, 2500 ft., March 30, 1898 (C. Curtis).

1105B. *P. galactina orientalis* (Walk.).

5 ♂♂, 5 ♀♀ Khasia Hills, Assam (native collectors); 1 ♂?; 6 ♂♂, 1 ♀ Naga Hills, Assam, 5500-7000 ft., September-October 1889 (W. Doherty), 1 ♂, 1 ♀ Sikkim, 1000-4500 ft. (Otto Möller), 1 ♀ Mongpa Sikkim, July 1886 (H. J. Elwes), 1 ♀ Randakeit, N.W. India (Mansfield) (H. J. Elwes coll.); 1 ♂ Assam; 1 ♂, 1 ♀ Cherrapunji, Assam; 1 ♀ Shillong, Assam, April, 1903; 1 ♀?; 1 ♂ Bhtan; 1 ♀ Darjeeling (Fritz Möller); 1 ♀ Sikkim, June 11, 1889 (J. G. Pilcher); 1 ♂, 3 ♀♀ Sikkim (Mandelli) (Felder coll.). 1 ♂ from the Naga Hills, and 1 ♂?, and 4 ♂♂, 1 ♀ from the Khasia Hills have the vertex and collar crimson and the inner area pale crimson; 1 ♀ from the Khasia Hills has the forewings almost entirely black, and the hindwings much clouded with sooty black; 1 ♀ from the Khasia Hills has the forewings almost entirely white.

1106. *P. melanopsis* (Walk.).

3 ♂♂? (Felder coll., 1 is type of *Aloa callisoma* Feld.); 5 ♂♂, 4 ♀♀ Ceylon (1 ♂ Newman; 1 ♀ Pundaloya, March 1897; 2 ♀♀ Diyatelawa Camp, 4200 ft. (Findlay).

1107. *P. tripartita* (Walk.).

1 ♂ Lower Burma; 6 ♂♂, 2 ♀♀ Monlmein, Burma; 1 ♂ Youboi, Hainan, June 1904.

1108. *P. conjuncta* Hmps. n.

1 ♂ Sapit, Lombok, 2000 ft., May—June 1896 (H. Fruhstorfer); 1 ♂ Lombok, 1000 ft., June 1896 (A. Everett).

1109. *P. obliquifascia* Hmps. n.

8 ♂♂, 8 ♀♀ Monlmein, Burma; 2 ♂♂, 3 ♀♀ Lower Burma; 1 ♂ Rangoon; 1 ♂? (Felder coll.); 1 ♀ Naga Hills, Assam, 5500–7000 ft., September—October 1889 (W. Doherty), 1 ♀ Mandi, N.W. Himalayas, 3000—5000 ft., 1883 (G. Young) (H. J. Elwes coll.); 1 ♀ Maymyo, Shan States, June—August 1902 (Hanxwell); 1 ♀ Chengmai, Hainan, July 1902.

1110. *Pericallia williami* spec. nov.

Allied to *obliquifascia*.

♂. Legs, pectus, palpi, frons, and antennae sooty black-brown; vertex buff with black dot in centre; thorax sooty black-brown, outer edge of tegulae and the patagia whitish buff; abdomen orange with transverse bars of sooty black-brown, anal segment sooty black-brown, clasper tufts orange.—Forewing sooty black-brown, a somewhat irregular elbowed creamy white central band from base of wing to termen, three white submarginal spots between veins 2 and 6, the central one much the largest.—Hindwing creamy white, a discocellular sooty spot and another at tornus, inner area pale orange.

♀. Similar, but hindwings pale orange with sooty margins and the spots larger; forewings have only one submarginal spot.

Length of forewing: ♂ 17 mm., ♀ 18 mm.

Hab. Bali, low country, March—April 1896 (W. Doherty), type; Mount Gedé, West Java, 4000 ft., 1896 (H. Fruhstorfer); Palaboean, Java; Residency of Djember, Java.

4 ♂♂, 3 ♀♀.

1111. *P. whiteheadi* spec. nov.

♀. Pectus orange; legs pale brown outside, orange inside; head orange, two black dots on frons, one on vertex; antennae pale brown; thorax cream-colour with ten black dots, tegulae edged with orange; abdomen pale orange with central dorsal row of black spots.—Forewing brown, a large baso-subbasal cream patch with three brown dots at base, a similar patch in centre of cell reaching from vein 3 almost to costa; at the apex of cell and on disc a large irregular bifurcated cream-coloured patch from costa bifurcating at vein 4, one fork reaching outer margin at vein 2, the other fork nearly reaching inner margin one-third from tornus, an apical cream patch.—Hindwing pale orange edged with brown; this

colour expands at termen and at tornus into a large patch, in centre of terminal patch a pale orange spot.

Length of forewing : 27 mm.

Hab. Cape Engano, North Luzon (J. Whitehead).

2 ♀ ♀.

1112. **P. integra** (Walk.).

1 ♀ Tarlac, Luzon, Philippine Islands (Browne).

1113. **P. matronula** (Linn.).

9 ♂ ♂, 9 ♀ ♀ ? (5 ♂ ♂, 5 ♀ ♀ Felder coll.); 1 ♂, 1 ♀ Germany (Meyer coll.); 1 ♀ Bavaria; 2 ♂ ♂, 2 ♀ ♀ Germany (Groun-Grschmailo coll.): 1 ♂, 1 ♀ Silesia; 1 ♂ Kronstadt, Transylvania; 1 ♂ Jesio, Hokkaido, Japan, July 1901; 1 ♂ Suchan, South Ussuri district, near Nachodka Bay.

1114. **P. erosa** (Walk.).

6 ♂ ♂, 3 ♀ ♀ Ceylon.

1115A. **P. matherana rubelliana** Swinh.

1 ♂ Peermaad, Travancore; 1 ♂ Nilgiris, 1 ♀ Travancore (Place); 1 ♀ Merakara, October 1903.

1116. **P. distorta** (Moore).

1 ♂ ? (yellow hindwings); 1 ♀ Mussoorie, 1903.

1117. **P. rudis** (Walk.).

1 ♂, 1 ♀ Toli-Toli, North Celebes, November to December 1895 (H. Fruhstorfer); 1 ♀ North Celebes; 4 ♀ ♀ Sawangan, North Celebes; 1 ♂, 3 ♀ ♀ Tawaya, north of Palos Bay, Celebes, August to September 1896 (W. Doherty).

1118. **P. posinuntia** (Stoll).

2 ♀ ♀ Kayeli, Bouru, March 1897 (W. Doherty); 1 ♀ Sula Besi, October 1897 (W. Doherty); 1 ♀ Oeliasers, Island of Saparoea, January 1892 (Martin Expedition).

1119. **P. plutonica plutonica** (Feld.).

Sir George Hampson has placed *tricolor* Pageant. and *burica* Holl. as synonyms of the above, but they are quite distinct subspecies. 1 ♀ Type Moluccas (Lorquin) (Felder coll.).

1119A. **P. plutonica burica** (Holl.).

1 ♂ Kayeli, Bouru, March 1897 (W. Doherty).

1119B. **P. plutonica distinguenda** (Walk.).

2 ♂ ♂ Sawangan, North Celebes; 1 ♂, 1 ♀ Tawaya, north of Palos Bay, Celebes, August to September 1896 (W. Doherty).

DESCRIPTIONS OF NEW SPECIES OF *ARCTIANAE* IN THE TRING MUSEUM.

By THE HON. WALTER ROTHSCHILD, Ph.D.

1. *Epantheria kennedyi* spec. nov.

♂. Similar to *mus* Oberth. but larger. Differs as follows : pectus black, **not** white ; legs deep steel-blue with six narrow whitish bands, **not** white with nine or ten black bands ; palpi black, **not** white ; head pale grey, **not** white ; tegulae grey, **not** white ; two steel-blue lines start from a common point some distance from base forming a V on each tegula, **not** two widely separated parallel lines starting from base ; patagia steel-blue with mouse-grey borders, **not** greyish white with two parallel black lines ; thorax grey with two steel-blue parallel bands, **not** greyish-white with four hair lines. Abdomen, basal three segments and anal segment white, rest steel-blue.—Forewing semihyaline white, basal one-third, inner area to vein 2 and costal area pale grey, **not** white ; spots on costal and inner areas larger, grey, **not** white, with distinct much broader steel-blue borders, **not** hair-like black ones.—Hindwing white.

Hab. Preto, Minas Geraës.

1 ♂.

2. *Epantheria mus brasiliensis* subspec. nov.

♂. Similar to *mus mus*, but larger, and ground-colour grey, not white ; markings more pronounced.

♀. Ground-colour of forewings mouse-grey, not white.

Hab. Castro, Parana, Brazil, July 1897 (Type) (E. D. Jones) ; Sapucay, Paraguay, October 1902 (W. Foster) ; Corcovado.

6 ♂♂, 7 ♀♀.

3. *Epantheria magdalenae steinbachi* subspec. nov.

♂. Similar to *m. magdalenae* but much larger, and the three discal bands of dark patches on forewings closer together, owing to the innermost one being farther from the base.—Hindwing more suffused with orange, tail longer and wider. Abdomen much blacker above, owing to the black bands being wider and longer.

Hab. Buenavista, E. Bolivia (J. Steinbach).

3 ♂♂.

4. *Epantheria burmeisteri* spec. nov.

♂. Nearest allied to *hinkelini* Burm. Pectus brown-grey ; palpi buff ; frons black ; head creamy white ; antennae black ; thorax white, a grey-brown dot on tegulae, two grey-brown spots ringed with black on patagia, two blue-black spots at juncture with abdomen ; abdomen scarlet, two lines of steel-blue dorsal patches, last segment but one dorsally blue-black, anal segment above bluish brown, basal segment white, centrally brown.—Forewing : basal two-thirds white with four transverse rows of brown-grey patches ringed with black, outer one-third hyaline with two indistinct similar rows.—Hindwing semihyaline white, two minute dusky dots at tornus.

♀. Much larger, whole forewing pinkish white with seven very distinct transverse rows of patches.—Hindwing white with irregular rows and patches of dark grey. Abdomen differs in the steel-blue patches being larger and grey ringed with steel-blue; on second segment the two patches are united into one large patch.

Length of forewing : ♂ 24 mm. ; ♀ 29 mm.

Hab. Tucuman (J. Steinbach).

1 ♂, 4 ♀♀.

5. *Ecpantheria dognini* spec. nov.

Allied to *robusta* Dogn., but differs as follows : ♂ smaller; pectus white, **not** steel-blue ; palpi brown with white margin, **not** steel-blue with only first joint with white margin ; frons brown, **not** blue-black ; tegulae, basal half white, apical half mouse-grey, **not** white with black central round ring ; patagia mouse-grey edged with white, **not** white with kidney-shaped black ring ; thorax white with four mouse-grey patches, **not** white with four greyish white patches ringed with steel-blue. Abdomen, first segment brown, **not** greyish with three steel-blue patches ; rest of abdomen above steel-blue with an orange chevron on the fourth, fifth, and sixth segments and lateral orange longitudinal bands, **not** metallic bluish purple with orange segmental rings.—Forewings less hyaline and with six bands of patches.—Hindwings white, **not** hyaline with inner area white.

♀. Also smaller ; the hindwings three parts covered with dark grey blotches and abdomen steel-blue with lateral longitudinal orange bands.

Hab. Rio de Janeiro and neighbourhood (Petropolis).

1 ♂, 1 ♀.

6. *Ecpantheria testacea* spec. nov.

♂. Pectus pale cinnamon testaceous ; palpi buff ; frons black ; head and thorax pale cinnamon testaceous, a blackish grey oval ring on the patagia and some blackish dots on thorax ; abdomen above greyish steel-blue, basal and anal segments pale testaceous, a row of dorsal patches and lateral longitudinal bands orange.—Forewing pale cinnamon testaceous, outer one-fourth more semihyaline, a large blackish stigma at apex of cell, five transverse bands of blackish grey rings.—Hindwing hyaline, except inner area whitish ; inner area smoky brownish testaceous.

♀. Similar but paler and larger ; forewing testaceous white with six transverse bands of cinnamon testaceous patches, no cellular stigma.—Hindwing testaceous white with a marginal and submarginal row of pale testaceous patches.

Length of forewing : ♂ 24 mm. ; ♀ 30 mm.

Hab. Peru : Pozuzo ; La Oroya and La Union, Carabaya ; Chanchamayo.

14 ♂♂, 5 ♀♀.

7. *Ecpantheria icasia trinitatis* subspec. nov.

♂. Differs from *icasia icasia* by the absence of the black patches on the dorsal surface of abdomen, which are replaced by white bands.

♀. Differs by the absence of the dark rings to the white patches on the abdomen and paler markings on forewings.

Hab. Caparo and Belmont, Port of Spain, Trinidad.

41 ♂♂, 1 ♀.

8. *Ecpantheria melanoleuca* spec. nov.

♂. Pectus, legs, head and antennae sooty brown; palpi golden buff; thorax sooty brown, paler margins to tegulae and patagia; abdomen sooty brown, a testaceous central and orange lateral bands.—Forewing white, five broad irregular transverse bands of sooty brown coalescing blotches, the third and fourth forked from vein 6 to costa.—Hindwing white, two dark grey dots at tornus, a subapical one, and one in cell.

Length of forewing: 20 mm.

Hab. Suncho Corral, Santiago del Estero (J. Steinbach).

1 ♂.

9. *Ecpantheria oslari* spec. nov.

♂. Near *albescens* Hmps.

Pectus black and white; inside of tibiae orange; frons black with central white line; vertex white; antennae white above, sooty beneath; tegulae white with central black ring; patagia white with kidney-shaped black ring; thorax orange buff with central black ring; abdomen orange.—Forewing white with seven transverse bands of coalescing mouse-grey patches each with a black ring, the second and third band from base broken into two just below vein 3.—Hindwing satiny white with a costal band of pale sooty brown to just before termen.

Length of forewing: 18 mm.

Hab. Asper Ranch, Brownsville, Texas.

1 ♂.

10. *Apantesis fasciata pyrenaica* subspec. nov.

♂. Differs from *fasciata fasciata* by its bright crimson pectus and sides of chest and broad crimson collar. The forewing is entirely black except the white basal area, and has four narrow irregular zigzag white bands. The hindwing has the whole inner area yellow, **not** scarlet as in *fasciata fasciata*; the scarlet border is more than half obliterated, and there is a large extra black patch from costa to vein 2 across centre of wing.

Hab. Val d'Aras, Spanish Pyrenees, June 1907 (Mousquès).

1 ♂.

11. *Hypomolis palmeri* spec. nov.

♂. Legs sooty grey; pectus scarlet; palpi and frons scarlet; frons, tegulae, and patagia dark lavender grey; antennae sooty grey; thorax dull red in front, rest brownish bronzy olive; abdomen brick-red.—Forewing, costa scarlet with a black spot one-fifth from base, pale lavender grey with two black spots along subcostal vein; a black spot on vein 8 one-sixth from termen, rest of wing bronzy apple green with a brownish lavender grey shade on disc, central two-thirds of inner area to vein 1 plum-black, from this plum-black area an elbowed dark line runs to vein 3 from basal end, and two parallel dark lines from apical end to vein 2; on the disc is an irregular dark line surrounding the lavender shade.—Hindwing salmon-colour.

Length of forewing: 17 mm.

Hab. San Antonio, West Colombia, 5800 ft., December 1907 (M. G. Palmer).

2 ♂♂, 4 ♀♀.

12. *Palaeomolis garleppi* spec. nov.

♂. Legs, pectus, head, and thorax cinnamon; antennae rufous; abdomen paler cinnamon.—Forewing brownish cinnamon, a curved waved black transverse line one-third from base from costa to inner margin, a similar broader line from inner margin to lower angle of apex of cell where it forks, the inner fork reaching costa, the outer vein 10; beyond this a third waved transverse line from inner margin to costa one-fourth from termen.—Hindwing pale buffish cinnamon, an indistinct dusky cellular stigma.

Length of forewing: 13 mm.

Hab. Rio Tanampaya, Bolivia, 1894 (Garlepp).

1 ♂.

13. *Palaeomolis hampsoni* spec. nov.

♂. Legs and head dull brownish red; antennae brown; thorax chocolate washed with mauve, abdomen salmon buff.—Forewing, costa, and nervures orange scarlet, inner area below vein 1, costal area between costa and subcostal, and a patch between veins 2 and 5 mauve, outer marginal area broadly orange buff washed with brown, rest of wing bronzy grass green, some indistinct wavy dark lines on disc. Some specimens are browner, and have three distinct wavy discal lines.

Length of forewing: 16 mm.

Hab. Santo Domingo, Carabaya, S.E. Peru (Oekenden).

15 ♂♂.

14. *Pygarctia fusca* spec. nov.

♂. Pectus and legs sooty grey; forecoxae pale crimson; head, tegulae, and antennae sooty brown, collar crimson; thorax sooty brown; patagia edged inwardly with crimson; abdomen salmon crimson.—Forewing sooty brown, crimson at base.—Hindwing semihyaline, brownish grey, darker towards outer margin.

♀. Similar, but larger.

Length of forewing: ♂ 20 mm.; ♀ 25 mm.

Hab. Tucson, Arizona, May 19, 1903 (Type) (J. E. Osler); San José, Costa Rica, September 1902 (Underwood).

2 ♂♂, 1 ♀.

15. *Pygarctia osleri* spec. nov.

♂. Pectus pink; head grey and pink; antennae black; thorax pale whitish buffy grey; tegulae and patagia slightly edged with pink; abdomen salmon crimson.—Fore- and hindwing creamy whitish grey.

Length of forewing: 16.5 mm.

Hab. Las Vegas, New Mexico, July 1902 (J. E. Osler).

3 ♂♂.

16. *Stenarctia abdominalis* spec. nov.

♂. Pectus pale crimson; legs sooty brown; head and antennae and thorax brownish cinnamon, black central spots on tegulae; abdomen much elongated, salmon-colour, a black spot on each side of segments 2 to 7; anal tuft very large, pale crimson; clasper tufts yellow.—Forewing cinnamon brown, a black dot

on costa two-fifths from base, and a second one above apex of cell, and one in middle of cell.—Hindwing paler buffish cinnamon brown.

Length of forewing: 16 mm.

Hab. Moyamba, Sierra Leone, March 1903 (D. Cator).

1 ♂.

17. *Chlorhoda thoracica* spec. nov.

♂. Pectus crimson; legs crimson; tarsi ringed with black inside of tibiae, and coxae pale green; palpi crimson; antennae dark brown; head and thorax bright green; collar crimson; patagia broadly edged with crimson; abdomen crimson.—Forewing bright green; costa golden yellow, inner margin scarlet, at one-third from base and two-thirds from base a black streak about 2 mm. long runs into wing from costa and inner margin respectively (4 in all).—Hindwing semihyaline, orange buff slightly washed with pale green on outer area.

♀. Differs in having the patagia only slightly edged with crimson, the green of forewing much deeper and more bluish, and the hindwing semihyaline crimson; fringe deep crimson, a black dot at tornus.

Length of forewing: ♂ 21 mm.; ♀ 19 mm.

Hab. La Oroya, Carabaya, S.E. Peru (Ockenden).

2 ♂♂, 1 ♀.

18. *Seirarctia jacksoni* spec. nov.

♂. Pectus, head, and thorax sooty rufous brown; antennae white, pectinations rufous; abdomen whitish cinnamon with black transverse bands.—Forewings rufous, irrorated and banded with sooty black; a black cellular stigma.—Hindwings cinnamon pink, a sooty cellular stigma, and an interrupted semi-obsolescent submarginal sooty band.

♀. Similar, but ground-colour of forewings cinnabar red; hindwings and abdomen salmon pink.

Length of forewing: ♂ 19 mm.; ♀ 23 mm.

Hab. Nairobi to Mount Kenia, British East Africa (Jackson).

2 ♂♂, 1 ♀.

19. *Turruptiana thursbyi* spec. nov.

♂. Pectus, legs, and tegulae orange; thorax orange; patagia sooty black broadly edged with orange; abdomen black-brown with broad lateral crimson bands.—Forewings sooty black, basal one-fourth slightly variegated with whitish grey, median and postmedian wavy transverse bands buffish grey white.—Hindwing crimson, with broad black border not quite reaching tornus. One specimen has more white on forewing, and two others have the transverse bands dark grey.

Length of forewing: 15 mm.

Hab. Valley del Lago Blanco, Chubut, Patagonia (Thursby).

5 ♂♂.

20. *Stidzaeras strigifera* ockendeni subsp. nov.

♀. Differs from *s. strigifera* Druce by the bright scarlet **not** orange-yellow head and tegulae, the almost absent strigilations on the forewing, the last three segments of abdomen being black above and below, only orange laterally, and in the brown-grey of outer area of hindwing being broader and running into orange-buff area in streaks.

Length of forewing : 28 mm.

Hab. La Union, Carabaya, S.E. Peru (Ockenden).

1 ♀.

21. *Mallocephala magna* spec. nov.

♂. Pectus orange-brown; head and thorax brown; tegulae margined with orange; antennae buffish, pectinations brown; abdomen orange.—Forewing deep wood-brown; costa creamy buff.—Hindwing semihyaline white; basal two-thirds of inner margin orange; costa and two-thirds of outer margin dull brownish grey.

Length of forewing : 20 mm.

Hab. Salta, North Argentina (J. Steinbach).

1 ♂.

22. *Mallocephala brittoni* spec. nov.

♂. Head, thorax, abdomen, and forewing brownish cream-colour.—Hindwing white; antennae pale brown.

Length of forewing : 15 mm.

Hab. La Soledad, Entre Rios, Argentina, January 1899 (Miss E. A. Britton).

6 ♂♂.

23. *Mallocephala venata* spec. nov.

♂. Pectus white; head and tegulae pale grey; antennae rufous; thorax white; abdomen orange, densely clothed with white hairs almost hiding orange.—Forewing pale mouse-grey, with nervures all broadly white.—Hindwing white.

Length of forewing : 20 mm.

Hab. Preto, Minas Geraes.

1 ♂.

24. *Mallocephala insipida* spec. nov.

♂. Legs, pectus, and head clay-grey; antennae rufous grey; thorax, abdomen, and forewing cinnamon clayish grey.—Hindwing greyish white.

Length of forewing : 16 mm.

Hab. La Gama, Argentina, November 1899.

4 ♂♂.

25. *Antarctia quadrata* spec. nov.

♀. Nearest to *honora* Schaus.

Differs by the paler foxy brown thorax and forewing, the latter sprinkled with golden scales; the abdomen is darker orange, and lacks the large terminal buff cushion.—Hindwing paler, and with basal half of inner area orange.

Length of forewing : 22 mm.

Hab. Sapucay, Paraguay, September 2, 1901 (W. Foster).

1 ♀.

26. *Antarctia palmeri* spec. nov.

♂. Pectus and legs deep brown; head and thorax wood-brown; antennae buff, pectinations pale brown; abdomen orange-brown.—Fore- and hindwing greyish wood-brown.

♀. Much larger; pectus, legs, head, thorax, and forewing very deep wood-brown.—Hindwing paler; antennae pale brown; abdomen black-brown, each segment with a terminal belt of long thick orange hairs; a large buff anal cushion.

Length of forewing : ♂ 18 mm.; ♀ 26 mm.

Hab. San Antonio, West Colombia, December 1907, 5800 ft. (M. G. Palmer); Popayan, Colombia (Lehmann); Coriente, Cauca Valley, Torne, Cauca Valley, February 1907 (Paine and Brinkley); Bogota (Child); Guadalupe, Cundinamarca.

18 ♂♂, 19 ♀♀.

27. *Antarctia thursbyi* spec. nov.

♂. Pectus orange; legs brown, mixed with orange; head and antennae brown; thorax deep clay-grey; tegulae mixed with orange; abdomen orange.—Forewing deep brown, densely powdered with orange scales.—Hindwing paler, also powdered with orange scales; base and inner area orange.

Length of forewing: 19 mm.

Hab. Valley de Lago Blanco, Chubut, Patagonia (Thursby).

2 ♂♂.

28. *Antarctia vivida* spec. nov.

♂. Nearest to *vulpina* Hübn., but much brighter in colour; pectus, head, thorax, and legs deep rufous brown; forecoxae orange; antennae black-brown; abdomen dark orange, with brown hairs intermixed on central segments.—Forewing rufous brown; veins brownish buff.—Hindwing: basal one-third bright orange, outer two-thirds golden brown.

♀. Larger, slightly paler, and the orange area on hindwing much smaller.

Length of forewing: ♂ 21 mm.; ♀ 30 mm.

Hab. Caracas, Venezuela.

4 ♂♂, 3 ♀♀.

29. *Antarctia ockendeni* spec. nov.

♀. Larger than *gigantea* Jones. Pectus, legs, head, and antennae sooty brown; tegulae orange mixed with brown hairs, rest of thorax and abdomen brown mixed with orange hairs, a golden buff anal cushion.—Forewing dark brown densely clothed with orange hairs.—Hindwing paler more semihyaline brown, sprinkled with shorter golden hairs and with a sooty cellular stigma and margino-submarginal band.

Length of forewing: 38 mm.

Hab. Santo Domingo, Carabaya, S.E. Peru (Ockenden).

1 ♀.

30. *Antarctia klagesi* spec. nov.

♀. Legs, pectus, head, and thorax chocolate wood-brown; abdomen and anal cushion orange.—Forewing chocolate wood-brown, slightly marbled with darker brown.—Hindwing wood-brown.

Length of forewing: 18.5 mm.

Hab. Fonte Boa, Upper Amazons (S. M. Klages).

1 ♀.

31. *Antarctia marmorata* spec. nov.

♂. Pectus, legs, and head dark brown; antennae brown; thorax and abdomen brownish clay-grey.—Forewing brownish clay-grey, basal half blotched and marbled with various-sized patches of darker sooty grey, a dark spot in outer half on vein 8.—Hindwing brownish clay-grey.

Length of forewing: 17 mm.

Hab. Oconeque, Carabaya, S.E. Peru (Ockenden).

1 ♂.

32. *Antarctia steinbachi* spec. nov.

♂. Deep dull brown all over, disc of both wings somewhat semihyaline, a sooty cellular stigma and two indistinct dark brown transverse bands one-fifth from outer margin; abdomen brown, orange on sides.

♀. Larger deep rufous brown, with one sooty transverse band one-fifth from outer margin; abdomen and anal cushion orange, brown on centre of basal five segments.

Length of forewing: ♂ 15—17 mm.; ♀ 26 mm.

Hab. Buenos Aires, 1 ♂ (J. Steinbach); 1 ♂, 1 ♀ ? (Felder coll.); 1 ♀ Corrientes, Argentina, December 1898 (Maxwell Stuart).

33. *Antarctia haenschi* spec. nov.

♀. Chocolate wood-brown all over, anal cushion buff.

Length of forewing: 27 mm.

Larva black with three lateral rows of tufts of black bristly hairs; on each segment dorsally is a large transverse cushion of short, dense, soft hairs of a bright chestnut-red colour.

Hab. Santo Inéz, Ecuador (R. Haensch).

1 ♀, 2 larvae, and 2 cocoons.

34. *Antarctia fosteri* spec. nov.

♂♀. Stone-buff all over, except hindwings, tinged with orange on abdomen; hindwings cream-colour.

Length of forewing: ♂ 19 mm.; ♀ 26 mm.

Hab. Sapucay, Paraguay, 1900—1902 (W. Foster).

4 ♂♂, 1 ♀.

35. *Antarctia aurantiaca* spec. nov.

♂. Pectus, head, and thorax dull rufous orange; antennae rufous brown; abdomen dull rufous orange, anal segment and tuft whitish.—Forewing pale cinnamon greyish brown.—Hindwing greyish white.

♀. Brilliant orange all over, hindwing slightly paler; antennae rufous.

Length of forewing: 16—20 mm.

Hab. Buenavista, E. Bolivia (J. Steinbach); Sapucay, Paraguay (W. Foster); Province of Rio de Janeiro; Preto, Minas Geraes.

3 ♂♂, 4 ♀♀.

36. *Antarctia cneothocampoides* spec. nov.

♂. Legs, pectus, head, and thorax deep grey-brown, forecoxae orange; abdomen deep grey-brown, laterally orange.—Forewing mouse-grey, basal two-thirds darker, crossed by four irregular obsolescent dusky lines, subterminal and discocellular black spots.—Hindwing creamy white, with a few dusky dots; inner area buff.

Length of forewing: 16 mm.

Hab. Salta, North Argentina (J. Steinbach).

2 ♂♂.

37. *Antarctia lehmanni* spec. nov.

♂. Pectus, head, and forecoxae sooty grey; antennae brown, white shaft; rest of insect greyish white, sides of abdomen orange.

Length of forewing: 20 mm.

Hab. Popayan, Colombia (Lehmann).

1 ♂.

38. *Antarctia felderi* spec. nov.

♂. Pectus, legs, head, and thorax bright rufous brown; antennae dull brown; abdomen orange.—Forewing bright rufous brown, costa orange-buff.—Hindwing cream-white, inner area, costa, nervures slightly and submarginal line buffy brown.

♀. Duller brown; hindwings clay-brown; abdomen with buff lateral stripes.

Length of forewing: ♂ 17 mm.; ♀ 21 mm.

Hab. Rio de Janeiro.

1 ♂, 1 ♀.

39. *Antarctia peruviana* spec. nov.

♂. Pectus, head, thorax, and forewings sooty brown-black; antennae yellowish brown; hindwing, basal half whitish, outer half sooty brown; abdomen dark grey.

Length of forewing: 17 mm.

Hab. Agualani, Tinguiri, and Rio Inambari, Carabaya, S.E. Peru (Ockenden).

26 ♂♂.

40. *Antarctia cajetani* spec. nov.

♂. Uniform sooty chocolate; basal two-thirds of hindwings and veins of forewings whitish; antennae rufous.

Length of forewing: 18 mm.

Hab. Monte Video (Felder coll.).

1 ♂.

41. *Proschaliphora butti* spec. nov.

♂. Pectus brown-grey; legs banded dark brown and yellow; head, tegulae, and patagia orange; thorax pale lavender grey; abdomen orange, passing into buffy yellow towards the anal end.—Forewing cream buff, fringe golden, two black spots at base, an antemedian straight and a postmedian curved transverse black band, a black discocellular stigma joined to postmedian band in ♂, free in ♀; a submarginal row of seven black spots, two subterminal black spots on costa.—Hindwing cream-buff, fringe yellow; a submarginal row of six black dots.

♀ larger.

Length of forewing: ♂ 15 mm.; ♀ 17 mm.

Hab. Foot of Nieuwveld Mountains, five miles N.W. of Beaufort West (Mrs. Butt); Weenen, Natal.

1 ♂, 1 ♀.

42. *Procanthea nivea* spec. nov.

♀. Silvery white, a sub-basal, antemedian, and postmedian, and a submarginal row of yellow spots on forewing, a black dot above vein 4 and one above vein 5.

Length of forewing: 19 mm.

Hab. Natal.

1 ♀.

43. *Arctia caja parva* subspec. nov.

♂ ♀. Differs from all other forms by its small size. A whitish pink basal band to tegulae.—Forewing very deep brown, the white markings much narrower than in any other form.—Hindwing very deep scarlet.

Length of forewing : 23 mm.

Hab. Labrador.

2 ♂♂, 1 ♀.

44. *Teracotona homeyeri* spec. nov.

♂. Pectus crimson ; legs red banded with black ; head brownish buff ; collar crimson ; thorax, tegulae edged narrowly with crimson internally, two black dots on shoulders, patagia bordered with crimson ; abdomen, basal segment pale crimson, rest yellow ringed with black.—Forewing brownish buff ; costa scarlet, a round black cellular stigma.—Hindwing pinkish white, a small dusky cellular stigma, inner area washed with pink.

♀. Pectus and legs crimson ; head cream buff ; antennae black, basal 2 mm. scarlet ; collar broadly crimson ; thorax cream buff, tegulae tipped and edged with brownish orange, two black spots at shoulders, patagia broadly edged with crimson ; abdomen, first segment crimson, rest orange.—Forewing salmon buff, fringe orange, inner margin scarlet, a black half-moon at apex of cell.—Hindwing buffish orange, inner area crimson, a large black half-moon at apex of cell.

Length of forewing : ♂ 23 mm. ; ♀ 31 mm.

Hab. Pungo Andongo, Angola, 1875 (Type) (A. von Homeyer) ; Manow, German East Africa.

1 ♂, 1 ♀.

45. *Teracotona batesi* spec. nov.

♀. Pectus creamy whitish grey ; legs clay-brown ; head and thorax creamy whitish grey, tegulae narrowly edged with pale orange, a black spot on shoulders ; abdomen orange, a central dorsal row of black spots ; antennae above white, apical one-third black.—Forewing creamy whitish grey densely irrorated with dull brown.—Hindwing creamy white, two fuscous spots at tornus and one cellular stigma.

Length of forewing : 30 mm.

Hab. Bityé, Ja River, Camaroons, 2000 ft., January to March 1907, dry season (Type), (G. L. Bates) ; Sierra Leone (Major Bainbridge).

2 ♀♀.

46. *Teracotona buryi* spec. nov.

♀. Differs from *rodophaea* Walk. in the ground-colour of the wings being duller and browner irrorated and not banded with darker brown, and the hindwings having an irregular broken black submarginal band ; abdomen crimson, while in *rodophaea* the normal colour is orange.

Length of forewing : 24 mm.

Hab. Gambaga, Gold Coast (Dr. Bury).

2 ♀♀.

47. *Utetheisa pulchelloides salomonis* subspec. nov.

♂♀. Distinguished from *p. pulchelloides* by the great enlargement of the black and red patches in the forewings and the broad black border to hindwings in which is a round white spot.

Hab. Solomon Islands, Guadalcanar, May 1901, and Guizo, November 1903 (A. S. Meek).

7 ♂♂, 13 ♀♀.

48. *Utetheisa pulchelloides stigmata* subspec. nov.

♂♀. Differs from *p. salomonis* by the still wider black band to the hindwings and by having a large black patch at end of cell of same wings, and no white spot in black band.

Hab. Nonmea, New Caledonia; and Lifu, Loyalty Islands.

4 ♂♂, 8 ♀♀ (1 ♀ has forewings almost entirely red).

49. *Utetheisa pectinata ruberrima* subspec. nov.

♂. Differs from *pectinata pectinata* by the great extension of red on forewings and the very wide black border of hindwings, in which is a white spot in black band.

Hab. Lifu, Loyalty Islands.

1 ♂.

50. *Utetheisa callima dilutior* subspec. nov.

♂♀. This is the Central and East African subspecies of *callima* Swinhoe, and differs by having the cream-colour of the forewings much extended and the red bands narrower and paler and the band of the hindwings not regular owing to the white breaking in.

Hab. Slopes of Kilimandjaro, June 1905 (Jackson); Fort Johnston, Nyassaland, January—February 1896 (Dr. Percy Rendall); Mpnapna, German East Africa; Kissenyi, Lake Kivu, October 1907 (R. Grauer) (type); Ussuwi to Marienseen, Urundi, 1900—1800 m., June—July 1907 (R. Grauer).

23 ♂♂, 18 ♀♀.

51. *Utetheisa sumatrana* spec. nov.

♂. Head and thorax orange; abdomen white.—Forewing orange-scarlet, a central cream-white band from base to within one-fourth of apex of cell, a round cream spot in black patch above it, a cream spot in black ring at apex of cell, vein 1 from base broadly cream, fringe white.—Hindwing semihyaline white. One male has some cream spots on disc.

Length of forewing: 19 mm.

Hab. Deli, North-East Sumatra.

3 ♂♂.

52. *Utetheisa pulchelloides marshallorum* subspec. nov.

♂♀. Differs from *p. salomonis* by its very large size, equalling large *pulchella*, by the strong diminution of the black markings and increase of the red markings, and by the normal dark border to the hindwing.

Hab. Marshall Islands, Oceania.

4 ♂♂, 5 ♀♀.

53. *Axiopoeniella lasti* spec. nov.

♀. Differs from *A. laymerisa* in pectus, head, and thorax being of a sooty black-brown, **not** pale wood-brown; in the first two segments of abdomen being black-brown and the rest scarlet, **not** golden yellow; in the forewings being smoky

black-brown above and below, **not** pale wood-brown above and golden orange or salmon bordered with brown below; the hindwings differ in having the basal area and a much wider border black and the rest of the wing dark crimson, **not** crimson scarlet.

Length of forewing : 21 mm.

Hab. Madagascar (Last).

2 ♀ ♀.

54. *Rhodogastria magnifica* spec. nov.

This fine species is in structure nearest to *Rh. bubo*.

♂. Pectus white; forelegs chocolate, forecoxae, middle pair and hind pair of legs dull orange; palpi buff, a patch on middle and the third segment black; head white, two spots on frons black; thorax white, a black spot at base and one at apex of tegulae, two black spots on patagia, six black spots on thorax; abdomen, basal half above white, apical half crimson scarlet, a lateral row of black spots.—Forewing, basal half white, three black spots at base, costa at base dilated into a very large vesicle 8 mm. long by 5 mm. wide, with a large transverse opening in it coloured black, outer half of wing semihyaline bluish white, a broad median transverse band clay-brown, apex of wing clay-brown reaching along costal area to base of vein 9 and on outer margin to beyond vein 5, nervures pale brown.—Hindwing semihyaline white, tornus produced into a short tail.

Length of forewing : 36 mm.

Hab. British East Africa.

1 ♂.

55. *Rhodogastria rothi* spec. nov.

Nearest to *Rh. vidua*.

♂. Pectus and legs pale crimson, outside of foretibiae and basal two-thirds of tarsi chocolate; head brown washed with pink, a black spot between antennae and another on vertex; palpi black; antennae black-brown; collar and base of antennae crimson; thorax chocolate-brown, tegulae and patagia narrowly edged with crimson on inside, a black spot at apex of tegulae, one on patagia and six on thorax; abdomen crimson.—Forewing deep chocolate-brown, disc semihyaline, base pink with two black dots.—Hindwing semihyaline, buffy rose, veins deeper rose, apex broadly chocolate, outer margin and inner area pale salmon-crimson.

♀. Similar.

Length of forewing : 24—26 mm.

Hab. Warri, River Niger, May 1897 (Dr. Roth).

4 ♂ ♂, 3 ♀ ♀.

56. *Rhodogastria roseomarginata* spec. nov.

♂. Pectus and inside of legs bright carmine, outside of fore- and middle legs chocolate, of hindlegs carmine; palpi carmine, spotted and tipped with black; head and thorax cinnamon wood-brown with usual twelve spots and crimson collar; abdomen dark carmine, basal segment cinnamon wood-brown.—Forewing cinnamon orange-brown, disc semihyaline, beyond apex almost clear hyaline.—Hindwing almost hyaline; nervures, margin, and inner area brownish rose.

Length of forewing : 24 mm.

Hab. Ogrngu, Niger; Kiongo, south of Rovima, March to May 1898 (Reimer).

5 ♂ ♂.

57. *Rhodogastria affinis* spec. nov.

♂. Differs from *roseomarginata* by its duller brown colour, in the disc being semihyaline and not having the part beyond the cell vitreous, in the absence of the uniformly wide rose margin to the hindwing, which has a broad brown apical patch and a narrow grey-brown margin. The forewing is also much wider. Abdomen brownish rose.

Hab. South Africa.

Sir George Hampson has united under *Rhodogastria astreas* (Drury) a very heterogeneous mass of species, both African and Asiatic. He afterwards reinstated *bauri* Möschl. as a species, but quite failed to see that **none** of the African *Rhodogastria* of this group were synonymous with *astreas* or any of the other Asiatic forms. The African forms are as follows :

Rh. bauri Möschl., South Africa.

„ *madagascariensis* Boisd., Madagascar.

„ „ *vitreata* Plötz, Niger to Natal.

„ *roseomarginata* spec. nov., Nigeria and East Africa.

„ *affinis* spec. nov., South Africa.

58. *Rhodogastria crokeri novobritannica* subspec. nov.

♂ ♀. Differs from *c. crokeri* by its more dusky and darker forewings, by the entire absence of the hyaline spot in cell, by the semihyaline, **not** hyaline, disc beyond cell, and by the semihyaline white hindwings margined with clay-brown, **not** entirely clay-grey hindwings. The black spots on tegulae are much larger, occupying one-third of each tegula; the whole basal third of the patagia is black, and the black spots on thorax are much larger.

Hab. New Britain.

1 ♂, 1 ♀.

59. *Rhodogastria crokeri salomonis* subspec. nov.

♀. Differs from *c. crokeri* in the basal fourth of the antennae being crimson, the black spot on frons almost occupying the whole frons, the black spot on tegulae enlarged to half the size of tegulae, the patagia being black margined outwardly with white, and the six black spots on thorax much enlarged. The ground-colour of forewing is also much darker.

Hab. Solomon Islands: Guadalcanar (Woodford); Guadalcanar, May 1901 (A. S. Meek); Florida, January 1901, Isabel, June—July 1901, Guizo, November 1903 (A. S. Meek); Tulagi (S. M. Woodford).

6 ♂♂, 4 ♀♀.

Isabel specimens seem to have a more magenta-coloured abdomen and tarsi.

60. *Rhodogastria omissa* spec. nov.

This species seems to have been completely overlooked.

♂. Coloured as in *astreas* Drury, but the forewing broad and rounded as in *roseibarba* Druce. Hindwing tailed as in *arthus-bertrand*, but the tuft on inner area is smaller and narrower and pale buff-primrose in colour. Abdomen, first segment dull pink, second segment white, three following segments primrose buff, last two segments crimson.

♀. Similar in colour to ♀ *astreas*, but much larger and broader, and hindwing produced into short tail at tornus.

Length of forewing: ♂ 33 mm.; ♀ 37 mm.

Hab. Khasia Hills, Assam (native collectors).

18 ♂♂, 19 ♀♀.

61. *Rhodogastria piepersi* Snell.

Nearest to *arthus-bertrand*, but not all identical with it, as the author afterwards asserted.

♂. Differs in having head and thorax dark mouse-grey, **not** pale whitish grey, in forewings being blunter and broader, and the disc being entirely semihyaline, **not** only beyond cell.—Hindwing is semihyaline mouse-grey, **not** white almost opaque; the tuft on inner area is much smaller, and brownish grey-buff, **not** white. Abdomen, first segment dark mouse-grey, second pale carmine, next three golden buff, and last two carmine.

♀. Very similar to ♀ *arthus-bertrand*, but thorax and head darker, both wings more semihyaline, and the tail much less developed.

Length of forewing: ♂ 27 mm.; ♀ 26 mm.

Hab. Tawaya, north of Palos Bay, Celebes, August–September 1896 (W. Doherty); Buton, April 1906 (Dr. Martin); South Celebes, August–September 1891 (W. Doherty); Dongola, south of Palos Bay, Celebes, 1896 (W. Doherty); Sula Mangoli, October 1897 (W. Doherty); ? (Felder coll.).

9 ♂♂, 3 ♀♀.

62. *Rhodogastria fumida pallida* subspec. nov.

♂♀. Differs from *f. fumida* by the almost buffy grey not wood-brown ground-colour of the wings, some males even being greyish white.

Hab. Dili, Timor, May 1892 (W. Doherty).

5 ♂♂, 1 ♀.

63. *Rhodogastria astreas hainana* subspec. nov.

♂. Smaller than *a. astreas*, darker grey disc of forewings less semihyaline.

♀. Larger, paler, more isabelline.

Hab. Cheng-Mai, Hainan, August 1902; Cochin China (Felder coll.).

2 ♂♂, 6 ♀♀.

64. *Rhodogastria astreas curtisi* subspec. nov.

♂. Differs from *a. astreas* in its smaller size, deep grey colour, and more opaque wings.

♀. Differs in its smaller size and dark colour, being quite like the ♂.

Hab. Penang, March 1897 (Curtis).

2 ♂♂, 3 ♀♀.

65. *Rhodogastria lactea* spec. nov.

♀. Pectus cream-white; legs outside fore pair buffy rufous, other two pairs whitish, inside all three pairs dull crimson; head and thorax pale brownish cream

with twelve black dots; antennae crimson; abdomen crimson.—Forewing creamy white, disc almost vitreous.—Hindwing semihyaline white.

Length of forewing : 22 mm.

Hab. Minbu, Burma.

1 ♀.

66. *Rhodogastria bipartita* spec. nov.

♂. Pectus orange; legs orange, whitish outside; palpi and antennae black; head and thorax white with black spots; abdomen orange.—Forewing white, two black spots at base, disc semihyaline beyond cell.—Hindwing shaped as in *arthus-bertrand*, brownish orange.

Length of forewing : 27 mm.

Hab. Tanta (Taveta), East Africa, July 1891.

1 ♂.

67. *Rhodogastria kuehni* spec. nov.

♂. Pectus white; legs buff, whitish outside; head white; antennae orange yellow; collar and anterior part of thorax orange yellow; rest of thorax white with eight black dots; abdomen orange yellow.—Forewing semihyaline white, costal area and nervure pale testaceous.—Hindwing semihyaline white.

Length of forewing : 29 mm

Hab. Dammer Island, December 1898 (H. Kühn).

2 ♂♂; one bad specimen in British Museum from Tenimber.

68. *Rhodogastria alberti* spec. nov.

♂. Pectus white with two black spots; legs crimson, white at sides; head and thorax white with ten black spots, collar and front of thorax crimson; antennae crimson; abdomen crimson.—Forewing white, two black spots at base, disc strongly semihyaline.—Hindwing semihyaline white, inner area pale greyish buff.

Length of forewing : 33 mm.

Hab. Cedar Bay, Queensland (A. S. Meek); Cairns, North Queensland.

4 ♂♂.

69. *Diacrisia porthesioides* spec. nov.

♂♀. Pectus white; head buff; thorax pale orange; abdomen white; antennae whitish.—Forewing buff.—Hindwing white.

Length of forewing : ♂ 19 mm., ♀ 25 mm.

Hab. Sikkim, May 1889 (J. G. Pilcher).

2 ♂♂, 3 ♀♀.

70. *Neritos eximius* spec. nov.

♂. Pectus pink; palpi and head black; antennae fuscous; thorax black, tegulae scarlet with black patch, patagia scarlet; abdomen scarlet, anal segment black, clasper tufts yellow.—Forewing black, a broad scarlet central band from base to vein 2, three longitudinal hyaline patches between veins 2 and 6.—Hindwing almost hyaline, basal half of inner area pale crimson, a broad margin half width of wing black.

Length of forewing : 13 mm.

Hab. La Oroya, Carabaya, S.E. Peru (Oekenden).

1 ♂.

71. *Elysium strigillata* spec. nov.

♂. Pectus orange; palpi, antennae, and head black; thorax black, tegulae and apical half of patagia orange; abdomen black, last two segments pale orange.—Forewing black crossed by about twenty-six irregular silvery buff transverse lines, giving the wing the appearance of alternate black and pale strigillation.—Hindwing black.

Length of forewing: 22 mm.

Hab. La Union, Carabaya, S.E. Peru (Ockenden).

1 ♂.

72. *Zatrephes atrata* spec. nov.

♂. Pectus buff; legs pale rufous brown; rest of insect above entirely black-brown; a three-lobed hyaline patch at end of cell on forewing.

Length of forewing: 18 mm.

Hab. Christianeburg, Rio Demerara, British Guiana.

1 ♂.

This species is close to *miniata* Rothsch.

73. *Robinsonia klagesi* spec. nov.

♀. Pectus white; palpi dark grey and white; antennae fuscous; head buff; thorax mouse-grey, tegulae and patagia white bordered with mouse-grey; abdomen orange with white central dorsal line, anal segment whitish.—Forewing brownish mouse-grey; a broad elbowed central white band one-third the width of the wing reaches from base to costa just before termen, inner margin white.—Hindwing white.

Length of forewing: 19 mm.

Hab. San Esteban, Venezuela, July 1909 (S. M. Klages).

1 ♀.

74. *Automolis fuliginosa* spec. nov.

♀. Pectus whitish; legs and head black; antennae fuscous; thorax black, a white spot at base of tegulae and patagia and a white patch at juncture of abdomen; abdomen above black; a white dot on segments 1, 5, and 6, below white.—Forewing, sooty grey at base; nervures and terminal area between vein 5 and costa sooty black.—Hindwing sooty black, semihyaline whitish between vein 2, basal half of inner area white.

Length of forewing: 20 mm.

Hab. Fonte Boa, Upper Amazon (S. M. Klages).

1 ♀.

75. *Glaucostola underwoodi* spec. nov.

♂. Pectus and legs grey; head deep orange; antennae and thorax grey; abdomen grey, underside of anal segment orange.—Forewing lavender grey.—Hindwing brownish black glossed with purple, a broad median wedged shaped hyaline bluish white reaching from base almost to outer margin.

Length of forewing: 19 mm.

Hab. Costa Rica (Underwood).

1 ♂.

76. *Amastus picata* spec. nov.

♀. Pectus pale yellow; head and tegulae white; antennae fuscous; patagia white with black basal band reaching half-way to apex; thorax pale yellow; abdomen pale yellow, last three segments greyish white.—Forewing dark sooty brownish grey, more hyaline towards base, a black discocellular stigma and a median and postmedian zigzag white line.—Hindwing semihyaline grey, a nebular grey-white submarginal line.

Hab. Huancabamba, East Peru (E. Böttger).

1 ♀.

77. *Halisidota notodontina* spec. nov.

♂. Pectus and legs pale buff; antennae pale brown; head and thorax buff; abdomen orange buff.—Forewing buff irrorated, banded and spotted with lavender grey-brown.—Hindwing yellow buff, a large patch of greyish brown from just below tornus to vein 5.

Length of forewing: 27 mm.

Hab. Huancabamba, East Peru (E. Böttger).

1 ♂.

78. *Ischnocampa pellucida* spec. nov.

♂. Legs, pectus, and antennae grey-brown; head, thorax, and abdomen brown-grey.—Forewing hyaline powdered and irrorated with brown and yellow specks.—Hindwing similar but less densely speckled, and the specks are grey-brown, hardly mixed at all with yellow.

Length of forewing: 15 mm.

Hab. Dominica, February 1905 (E. A. Agar), Valencia, Venezuela.

2 ♂♂, 3 ♀♀.

THE BIRDS OF HAINAN.

By ERNST HARTERT, PH.D.

(Plates V. and VI.)

NOTHING was known about the birds of Hainan, until R. Swinhoe, one of the most ardent ornithologists who ever worked in Eastern Asia, visited the island in 1868 and gave a list of the birds of Hainan, making known for the first time many species peculiar to that island. Naturally, at that time only the lowlands were visited, the mountains being left untouched.

Thus remained the state of Hainan ornithology until the late B. Schmacker, a German merchant residing in China, who was also an enthusiastic collector of shells, twice sent a Chinese collector named Tetsu to the island to gather shells for him, and with his usual forethought and interest in zoology generally, also requested him to bring as many birdskins as possible. Tetsu's trips—although ornithology was a secondary matter with them—had wonderful results, for he discovered the pretty mountain partridge described by Styan under the name of *Arboricola ardens*, the *Temnurus*, *Garrulax moniliger schmackeri*, and others. Mr. Styan described some of the new forms, and a list of all the specimens was published by the late Dr. Hartlaub.

A still greater step forward was made by John Whitehead, one of the best field ornithologists who ever was at work in the Eastern Archipelago. In 1889 he went to Hainan, and ascended the Five-Finger Mountains, where, unfortunately, he lost his life. Whitehead discovered the beautiful Silver Pheasant named after him, a Night-heron (afterwards also obtained on the mainland), the peculiar *Urocissa whiteheadi*, *Garrulax pectoralis semitorquata*, *Dryonastes castanotis*, *Siphia pallidipes hainana*, *Lepocestes sinensis hainanus*, *Gecinus canus hainanus*, and a new *Harpactes*, also a number of known forms not before found on Hainan.

The number of Hainan birds given by Swinhoe in 1870 was 172; that of Styan in 1893, after the elimination of some doubtful and wrong ones, 159. This was raised to 239 through Whitehead's exploration on the Five-Finger Mountains.

The wonderful discoveries made by Whitehead aroused Mr. Rothschild's interest, and he induced Mr. Alan Owston, of Yokohama, to send a collector to Hainan. This he did very soon, and he chose for the expedition an excellent man, who far exceeded most other Japanese collectors. This man, named Katsumata, made even more discoveries than poor Whitehead (who was cut off when his work had only just begun). Katsumata obtained three specimens of the wonderful *Arboricola ardens*, all the species and subspecies discovered by Tetsu and Whitehead (and not only a few of each, but mostly in series of from ten to sixteen and more), with the exception of *Nycticorax magnifica* and *Graminicola striata*; a wonderful lot of novelties, among them a beautiful *Cissa*, a *Scritophus*, and a *Pitta*, all genera not known to occur on Hainan at all; and he raised the number of birds known to occur on Hainan from 239 to 281. Seven new forms were at once described by Dr. Rothschild in the *Bulletin of the Ornithologists' Club*, October 1903, and fourteen more are differentiated in this article. The latter was commenced three years ago, but, owing to much other and more pressing work, it was interrupted, and only quite recently taken up again to be completed.

The avifauna of Hainan is, of course, entirely tropical, as the mountains of the interior, though of considerable height,* are not so lofty as those on Formosa, where a number of quite palaearctic forms, such as *Carpodacus*, *Regulus*, *Cinclus* have been found, and evidently the Hainan Mountains, with regard to climate and situation, are not palaearctic enough to be the home of Northern bird forms.

The affinity to the near mainland of South China is, of course, greatest, many forms being the same as the South Chinese ones; while, with the exception of widespread birds, the forms which are the same as those found on Formosa are very few in number.

An interesting fact is the close resemblance or identity of a number of forms with those inhabiting the Himalayan mountains and hills of Burma and Tenasserim. See among others Nos. 13, 109, 116, 121, 122, 132, 163, 189, and 264.

There is a marked tendency—often noticed in insular forms—in the birds of Hainan to be smaller and darker than their continental allies.

Altogether the avifauna of Hainan is a most interesting one, although it had been neglected all the time from Swinhoe until quite recent years.

In my arrangement I have, with a few exceptions, followed that adopted by Mr. Ogilvie-Grant, except that I began "at the wrong end," as our friend Dr. Slater calls it. My nomenclature differs of course a good deal from Mr. Ogilvie-Grant's, as I employ trinomials where I am aware of the existence of subspecies, and I have separated several forms deserving of being treated as geographical races, though not deemed worthy of "specific rank" by Mr. Grant.

The following forms are named for the first time in this article: *Turtur chinensis hainanus*, *Glaucidium cuculoides persimile*, (*Accipiter virgatus confusus* from the Philippine Islands), *Ceryle rudis insignis*, *Rhopodytes tristis hainanus*, *Myzopicus scintilliceps swinhoei*, *Cecinus chlorogaster longipennis*, *Graucalus macei loricatus*, (*Pycnonotus sinensis formosae* from Formosa), *Turdinulus roberti hainanus*, *Proparus brunnea argutus*, *Proparus nipalensis rufescens*, *Turdus citrinus aurimacula*, *Phylloscopus goodsoni*, *Acridotheres cristatella brevipennis*, and *Dendrocitta sinensis insulæ*.

PRINCIPAL LITERATURE ON THE BIRDS OF HAINAN.

Swinhoe: On the Ornithology of Hainan. *Ibis*, 1870.

Styan: Descriptions of New Birds from Hainan. *Bull. B. O. Club*, i. p. xix.

Styan: On the Birds of Hainan. *Ibis*, 1893, p. 424.

Hartlaub: Ein Beitrag zur Ornithologie Chinas. *Abhandl. naturw. Ver. Bremen*, xii. 2, p. 295 (1892).

Hartlaub: Ein dritter Beitrag zur Ornithologie Chinas. *Abhandl. naturw. Ver. Bremen*, xiv. 3, p. 341 (1897).

Hartlaub: Nachträgliches zur Ornithologie Chinas und insbesondere Hainans. *Abhandl. naturw. Ver. Bremen*, xvi. 2, p. 245 (1899).

R. Ogilvie-Grant: On the Birds of Hainan. *P. Z. S.* 1900, p. 457.

W. Rothschild: Description of Seven New Forms. *Bull. B. O. Club*, xiv. p. 7 (1903).

R. Ogilvie-Grant: Additions to the Avifauna of Hainan. *P. Z. S.* 1910. This article was in press when the present article was about to appear, and could therefore not be quoted by me.

* I find on the map 2200 m. as the highest elevation, while twice that height is marked on Formosa.

1. *Gallus ferrugineus* (Gm.).

Tetrao ferrugineus Gmelin, *Syst. Nat.* i. p. 761 (1788—ex Sonnerat, China).

Gallus ferrugineus (Gm.) Hartert, *Noe. Zool.* 1902. p. 218.

Gallus gallus Grant, *P. Z. S.* 1900. p. 504.

12 ♂♂, 4 ♀♀ from Mt. Wuchi, Cheteriang and Yon Boi (No. 115).

An egg was taken on May 25, 1904. It measures 50 × 38 mm.

2. *Gennaeus whiteheadi* Grant.

Grant, *P. Z. S.* 1900. p. 503, pl. xxxiv, ♂ ♀.

We have received 7 ♂♂ ad., 7 ♀♀ ad., and 1 ♂ juv., all from Mt. Wuchi. The young male was shot on November 30, 1905. Its plumage is exactly like that of the adult male; but the latter is, of course, larger, with a much longer tail. (No. 174.)

3. *Polyplectron bicalcaratus katsumatae* Rothsch.

Polyplectron katsumatae Rothschild, *Bull. B. O. C.* xvi. p. 111 (June 1906—Mt. Wuchi, Hainan).

5 ♂♂ ad. Mt. Wuchi, 18, 30. x. 1905; 15, 16. xi. 1906 (No. 268).

1 ♂ juv. Mt. Wuchi, 18. xi. 1905 (No. 268).

5 ♀♀ Mt. Wuchi, 25. x. 1905; 15, 16, 18. xi. 1906 (No. 268).

1 tail-feather, Chicheriang, South Hainan, 1904.

This beautiful bird has been fully described, and the differences from the allied forms stated by Mr. Rothschild, *l.c.*

In 1904 a tail-feather was found in South Hainan. From this single rectrix—especially when considering the new locality—Mr. Rothschild had no doubt that we had in Hainan a new form of *Polyplectron*; but we cautiously refrained from giving a new name from a feather alone, until we had received a series of complete specimens, which Katsumata, Mr. Owston's excellent and diligent collector, sent about a year later.

"Iris lavender-grey; bill slate-black; feet plumbeous, claws slaty black" (Katsumata).

4. *Excalfactoria chinensis* (L.).

Grant, *P. Z. S.* 1900. p. 503.

It seems that this species has not before been obtained in Hainan, where, however, it was seen by Swinhoe.

We have received 7 ♂♂ and 4 ♀♀ from Cheteriang and Borten, in Hainan. These birds are not as dark and as grey above as *E. chinensis lineatus* from the Philippines (Malayan Islands, etc.); but seem to agree well with *E. chinensis chinensis*, of which, however, our series is not good. (No. 233.)

5. *Coturnix coturnix japonica* Temm. & Schleg.

Coturnix vulgaris japonica Temminck & Schlegel, Siebold's *Fauna Japonica, Aves*, p. 103, pl. 61 (1842—Japan).

Coturnix coturnix Grant, *P. Z. S.* 1900. p. 503.

We have received 5 ♂♂ and 9 ♀♀, all from South Hainan, shot on December 21 to 24, 1903, and one on February 8, 1903. All the females have the lanceolate throat-feathers, and nearly all specimens have the flank-feathers margined with rufous. Therefore they are not *Coturnix coturnix coturnix*, but *C. coturnix*

japonica. The males have not a brick-red throat, but there is a suffusion of brick-red on some of them. (No. 151.)

Mr. Grant only included the quail on the authority of Hartlaub, who had received a bird shot in North Hainan on January 29.

6. *Francolinus chinensis* (Forst.).*

Tetrao Chinensis J. R. Forster, *Voy. to China*, by Osbeck (translated from the German translation), *Faunula Sinensis*, vol. ii, p. 326 (1771—China).

Francolinus chinensis Grant, *P. Z. S.* 1900, p. 503.

A fine series, curiously all males, from Tingan (No. 83).

(" *Caccabis chukar* " has been quoted by Hartlaub as having come from Hainan; but our collectors did not find it. Probably the occurrence in Hainan is not genuine.)

Clutches of four eggs (probably not full?) were found near Tingan on May 25 and 27. The eggs are cream-coloured to brownish cream, and measure: 38.5×30.6 , 37×30.1 , 35.6×30 , 35.6×28.5 , 38.6×30.5 mm.

7. *Arboricola ardens* Styan.

Styan, *Ibis*, 1893, p. 436, pl. xii.; Grant, *P. Z. S.* 1900, p. 503.

2 ♂♂, 1 ♀ Mt. Wuchi, Lei Muimon and Cheteriang, January and April 1903. The female agrees perfectly with the males in colour, but is smaller. The males have the wings 30 and 36, the female 22 mm. long. The tarsus of the males is 35 and 39, that of the female 33 mm. long. (No. 133.)

"Bill black; iris seal-brown; feet salmon-colour" (Katsumata).

This beautiful bird was formerly only known from the type specimen, obtained at "Luiwowan," which is evidently the same as "Lei Muimon."

Regarding the plate in the *Ibis* it may be said that the breast is of a delicate pale salmon-pink colour, not brownish. In the smaller one of our two males the grey is extended over the breast. On the sides of the upper throat is a patch of bare pink skin instead of a patch of whitish feathers, as the plate shows, and the black feathers on the throat are sparse, the pink skin shining through in several places.

8. *Turnix dussumieri* Temm.

Grant, *P. Z. S.* 1900, p. 503.

Hartlaub recorded a specimen from North Hainan. We did not receive examples.

9. *Treron nipalensis* (Hodgs.) (? subsp.)

Toria nipalensis Hodgson, *As. Res.* xix, p. 164, pl. ix. (1836).

Treron nipalensis Grant, *P. Z. S.* 1900, p. 501.

9 ♂♂, 4 ♀♀ Mt. Wuchi, Lei Muimon, Cheteriang (No. 130).

Generally the bill of the Hainan specimens is thicker, wider, and sometimes longer. There is, however, so much variation, some Hainan examples having the bill not larger than Indian birds, and some of the latter coming up to those from Hainan in the dimensions of the bills, that I cannot confidently separate the Hainan form.

* Mr. Ogilvie-Grant (*Cat. B.* xxii, pp. xii, 136) quotes "*Tetrao chinensis* Osbeck, *Voy. en Chine*, ii, p. 326, 1771." The edition of 1771, however, is an English translation, and to the second volume has been added a "*Faunula Sinensis*" by Forster. The author of the name *chinensis* is therefore Forster, not Osbeck, who wrote his book in Swedish in 1757, i.e. before the 10th edition of Linnaeus.

10. *Treron bicincta domvilii* (Swinh.).

Osmotreron domvilii Swinhoe, *Ibis* 1870. p. 354 (Hainan).

Osmotreron bicincta Grant, *P. Z. S.* 1900. p. 501.

5 ♂♂, 3 ♀♀ from Lei Muimon, Utoshi, Cheteriang and Wupashi (No. 137).

Osmotreron, or as I should call it, *Treron bicincta*, has been treated as ranging from the foot of the Himalayas to Ceylon and Hainan. Roughly speaking this is correct, but the species must be split into several subspecies.

1. *Treron bicincta bicincta* (Jerd.), from the Indian mainland to (at least) Tenasserim (I have not seen specimens from Cochin China). Larger, wing ♂ about 62—65 mm.

2. *Treron bicincta leggei* subsp. nov., Ceylon.

Differs from *T. b. bicincta* only in its smaller size. Wings: ♂ about 42—48 mm. The smaller size of the Ceylon birds has often been emphasised. First, as far as I know, by Colonel Legge, in the *Birds of Ceylon*, p. 725, by Salvadori (*Cat. B. Brit. Mus.* xxi. p. 58), and by Blanford (*B. India*, iv. p. 12). It is, therefore, time that the Ceylon bird should receive a name, to distinguish it from its larger Indian brother. Type of *T. bicincta leggei*: ♂ ad. Ceylon, 9. vi. 1889, collected by Bruno and H. Geisler. No. 7069, Tring Museum.

Named in honour of Colonel Legge, who wrote one of the best books ever written on the birds of one island—the immortal “*Birds of Ceylon*.”

3. *Treron bicincta domvilii* Swinh., Hainan.

The differences of the Hainan form are not striking, and not very constant, yet we are bound to call attention to them, and not pass them over in silence. Swinhoe says *T. b. domvilii* is smaller, but this is not correct. The forehead and throat are green in *T. b. bicincta* as well. The grey nuchal patch of the male, however, is, as a rule, much smaller, though sometimes it is fully as large! In the female the nuchal patch, which is always distinct in the females of *T. b. bicincta* and *leggei*, is indistinct and small. The under tail-coverts are mostly much paler than in *T. b. bicincta*.

11. *Sphenocercus sororius* subsp. nov. ?

Sphenocercus sororius Swinhoe, *Ibis* 1886. pp. 311, 406 (Formosa).

1 ♀ Mt. Wuchi, 5. iv. 1903 (No. 205).

We have only received one female of this species. It closely resembles females of *S. sororius*, but the latter are mostly larger—wings 172—184 mm.—while the wing of the Hainan specimens is only 168 mm. long. The yellowish green of the foreneck extends distinctly farther down over the breast; the back is a shade more yellowish green.

Not being a priority-hunter, I refrain from naming this apparently new form, hoping that the Tring Museum or some one else will soon receive males and more females.

This species has not been previously recorded from Hainan.

12. *Carpophaga aenea* (L.) (? subsp.)

Columba aenea Linnaeus, *Syst. Nat.* ed. xii. p. 283 (1766—“Habitat in Moluccis”: ex Brisson!).

Carpophaga aenea (error) Grant, *P. Z. S.* 1900. p. 501.

1 ♂ (Cheteriang, 10. i. 1904; ♀ Mt. Wuchi, 11. xi. 1905 (No. 231).

I cannot at present discuss the various subspecies of *C. aenea*. The Hainan

examples agree with what we generally call *C. aenea*, being different from *C. aenea sylatica*, *C. aenea chalybura*, and *C. aenea palawanensis*. *C. aenea* being described from the "Moluccas," it is somewhat difficult to say what is typical *aenea*, but I think we must refer this name to the birds from the Lesser Sunda Islands, Lombok and Flores. This form does not seem to differ from the larger Indian one.

13. *Carpophaga insignis griseicapilla* (Wald.).

C. griseicapilla Grant, *P. Z. S.* 1900. p. 501.

2 ♂♂, 2 ♀♀ Mt. Wuchi, 20. xi. 1905; 16. xi. 1906 (No. 267).

One ♀ of these, as well as those obtained by Whitehead on Hainan, agree perfectly with typical Burmese *griseicapilla*, while the other 2 ♂♂ and 1 ♀ are not or hardly distinguishable from true *insignis* of the Himalayas. This form is otherwise an inhabitant of the mountain ranges from Assam to Tenasserim.

It seems that all Himalayan examples have the crown vinous or greyish pink, while those from Burmah have it invariably pure French-grey. Birds from Assam are partly typical *griseicapilla* (cf. *J. f. O.* 1886, p. 433), partly intermediate, partly like *insignis*. I am inclined to think that these pigeons are only winter visitors on Hainan.

14. *Columba livia* subsp. ? ?

2 ♂♂ ad. Hoihow, 15, 21. iii. 1902.

"Iris pearl grey, bill blackish slate, feet brown."—"Iris maroon, bill slate, feet brown."

These two birds agree in every respect with "*Columba livia schimperi*" from Egypt and Palestine, except that their bills are shorter and thicker, their dimensions larger, especially the wings longer, measuring $22\frac{1}{2}$ and 24 cm. They are paler than *C. livia intermedia* and *C. livia neglecta*. The question is: are these Hainan specimens feral descendants of domestic pigeons, or do they belong to a wild race of *Columba livia*? In the latter case they must have a new name.

It may be added that, if *C. intermedia* and *schimperi* are separated as species, or rather more correctly subspecies of *C. livia*, another form intermediate between *intermedia* and *schimperi* from E. Persia, parts of Turkestan and Afghanistan must be separated, the name of which will probably be *neglecta* Hume.

15. *Columba puniceus* (Tick.) (? subsp.).

Alsocomus puniceus Tickell, *Journ. As. Soc. Bengal* xi. p. 461.

Columba punicea Grant, *P. Z. S.* 1900. p. 501.

A series from Namro, Utoshi and South Hainan (Nos. 206, 230).

All the males have the crown of the head rather dark grey, and if all continental examples have the crown whiter, the Hainan form will have to be recognised as a new subspecies.

16. *Macropygia tusalia minor* Swinh. (? forma dist. ?).

Macropygia tusalia (Hodgs.), var. *minor* Swinhoe, *Ibis* 1870. p. 355 (Hainan).

Macropygia swinhoii Ramsay, *Ibis* 1890. p. 218.

Macropygia minor Grant, *P. Z. S.* 1900. p. 502.

It is most doubtful if the Hainan form can be distinguished at all from Indian *M. tusalia*, though Ramsay, Salvadori, and Grant have separated it as a "species."

The size is not less than in continental specimens, the reflections on the hind-neck are in both forms sometimes pink and sometimes green, the bars on the tail are the same, and the general colour as well. **Perhaps** the ground-colour of the back is generally darker, and mostly—but not always!—the black ante-apical bars on the crop are less distinct. I believe this form cannot be separated.

Lei Muimon, No-Tai, 12 skins (No. 111).

17. *Turtur orientalis* (Lath.).

Grant, *P. Z. S.* 1900. p. 502.

Five skins from Lei Muimon and Utoshi (No. 135).

18. *Turtur humilis* (Temm.).

Grant, *P. Z. S.* 1900. p. 502.

A large series from Secha (No. 62).

Nests were found near Secha during the second half of May 1902, from ten to fifteen and even twenty feet above the ground, each containing two eggs. The latter measure 26.6×20 , 27×21 , 26.6×20 , 25.5×20.5 , 27×21.5 , 20.6×19.4 , 26.5×21.5 , 26.5×19.8 , 28.5×20.6 , 28×21 , 24.9×20.6 mm., and between these measurements.

Some of the eggs are very slightly tinged with cream-colour.

19. *Turtur chinensis hainanus* subsp. nov.

Turtur chinensis Grant, *P. Z. S.* 1900. p. 502.

The Hainan form of *Turtur chinensis* differs from *T. chinensis chinensis* in being smaller and darker in colour. The vinous of the breast is darker, the brown of the back is slightly darker, and the lesser grey and median brown upper wing-coverts are distinctly deeper in colour. Wings of *T. c. hainanus* (σ ♀) 145–152, of *T. c. chinensis* (σ ♀) 155–167 mm. The tails of the former are also about 1–2 cm. shorter. As the females of *T. chinensis* are darker, males must be compared with males, and females with females. The darker coloration of *T. c. hainanus* is already visible in quite young birds.

Type of *T. chinensis hainanus*: σ ad. Hoihow, 4. iii. 1902 (No. 1023).

We have received a series from Hoihow and Kiungchan (No. 23).

“Length: 300–315 mm. Iris ochre-yellow; bill slate; feet purplish red.”

An albinistic variety was shot at Hoihow 27. ii. 1902. It is white, tinged with lavender grey, here and there with a brown feather, the underside with a pink shade, the crown grey, the neck-band black-and-white, as usual.

Nearly twenty nests, each containing two eggs only, were found near Secha during the second half of May, from about ten to twenty feet above the ground. The eggs are white, like other doves' eggs, and measure 28×22 , 29.2×21.1 , 29×22 , 29.2×21.2 , 27.2×22.7 , 27.4×21.6 , 27.3×22.5 , 27.7×20.5 , 28.7×21.6 , 29.5×22.5 , 28×21.5 , and so on. One egg is not pure white, but creamy.

20. *Chalcophaps iudica* (L.).

Grant, *P. Z. S.* 1900. p. 502.

A large series from various localities: Lei Muimon, Namro, Utoshi, No-Tai (No. 76).

21. *Gallicrex cinerea* (Gm.).

Falica cinerea Gmelin, *Syst. Nat.* i. p. 702 (1788—"Habitat in Sina").
Gallicrex cinereus Grant, *P. Z. S.* 1900, p. 501.

Four skins from Tingan (No. 251).

One adult male, 10. vi. 1904, has the feathers of the upperside slaty-black with slate-grey edges, those to the inner secondaries only slightly tinged with brownish. Under-surface slate-colour, lighter towards the tail, each feather with a narrow whitish border. I believe this to be the fresh plumage of the adult male, though none of our Indian birds agrees with it exactly, the inner secondaries having more brown, the back and breast being blacker. Other Hainan specimens agree with Indian ones.

22. *Gallinula chloropus orientalis* Horsf.

Gallinula orientalis Horsfield, *Trans. Zool. Soc. Lond.* xiii. p. 195 (1820—Java).
Gallinula chloropus Grant, *P. Z. S.* 1900, p. 500.

Hitherto only obtained on Hainan by Schmaeker. Katsumata has now sent three skins: an adult male, obtained 23. iii. 1904, and two immature birds, obtained in March 1903, at Lindon (No. 202). The wing of the adult male only measures 162 mm., therefore the Hainan specimens must be regarded as the south-eastern form, *G. chloropus orientalis*.

23. *Fulica atra* L.

Grant, *P. Z. S.* 1900, p. 501.

Obtained in North Hainan by Schmaeker's collector, teste Hartlaub.

24. *Amaurornis phoenicurus phoenicurus* (Forst.).

Rallus phoenicurus Forster, *Zool. Ind.* p. 19 pl. 9 (1789—Ceylon).
Gallinula phoenicea Swinhoe, *Ibis*, 1870 p. 364 (Hainan).

Mr. Grant evidently overlooked this species in his list of Hainan birds, *P. Z. S.* 1900.

We have received a good series from Hoihow (No. 77). In *Nor. Zool.* 1904, pp. 184, 185, I gave a review of the subspecies of this Moorhen, but unfortunately, there is a disturbing misprint in line 7 on p. 185. The characters of *Amaurornis phoenicurus leucomelaena* are:—Adult birds with forehead, lores and sides of head slate-colour; breast and abdomen slate-colour, white in the middle. In my article it reads "forehead, lores and sides of head white," but these parts are white only in *A. phoenicurus phoenicurus* and *A. phoenicurus insularis*, and slate-colour in *A. ph. leucomelaena*.

Clutches of four and six eggs were taken from nests situated in rice-fields, about 7 to 12 in. high above the ground, on May 18 and 30, near Hoihow. The eggs are pinkish white, with rufous patches and splashes and pale violet underlying spots. The clutch of six measures: 36×27.5 , 36×28 , 36×27.6 , 36.4×27.9 , 35.6×27.1 , 35.6×27.5 ; while those of the clutch of four are smaller, measuring: 33.5×25 , 34.5×26 , 33×25.9 , and 32.8×26 mm.

25. *Podiceps fluviatilis philippensis* (Bonnat.).

Podiceps philippensis Grant, *P. Z. S.* 1900, p. 500.

Hoihow and Lindon (No. 41).

26. *Sterna anaethetus anaethetus* Scop.

This species has apparently not been mentioned as being obtained on Hainan. Mr. Katsumata sent a female shot at Hoihow on July 1, 1902 (No. 99).

27. *Sterna melanauchen* Temm.

Obtained by Swinhoe in Hoihow Harbour. Grant, *P. Z. S.* 1900. p. 500.

28. *Sterna sinensis* Gm.

Grant, *P. Z. S.* 1900. p. 500.

13 ad. ♂ ♀, 1 ♂ juv. Hoihow, August 1903 (Nos. 215, 216).

1 ♀ juv. Wupashi, I. iv. 1904 (No. 216).

29. *Hydroprogne caspia* (Pall.).

Grant, *P. Z. S.* 1900. p. 500.

2 ad. Hoihow, 10. vi. 1905 (No. 261).

30. *Gelochelidon anglica* (Mont.)

3 ♂ ♂ Hoihow, August 1903.

Apparently not previously recorded from Hainan.

31. *Hydrochelidon leucoptera* (Meisn. & Schinz).

1 ♀ Tingan, 12. v. 1904 (No. 240).

Apparently not recorded from Hainan.

32. *Larus ridibundus* L.

Grant, *P. Z. S.* 1900. p. 500.

Hoihow, according to Hartlaub.

33. *Larus saundersi* Swinh.

Grant, *P. Z. S.* 1900. p. 500.

Recorded from North Hainan by Hartlaub.

34. *Larus canus* L.

Grant, *P. Z. S.* 1900. p. 500.

Recorded by Swinhoe from various localities.

35. *Phalaropus lobata* (L.), 1758.

Grant, *P. Z. S.* 1900. p. 499 (*P. hyperboreus*).

♀ ad. Tingan, 12. iv. 1904 (No. 244).—Migrant.

36. *Rostratula capensis* (L.)

Grant, *P. Z. S.* 1900. p. 499.

9 ♂ ♀ Hoihow, December, March, July (No. 217).

Apparently breeding.

37. *Scolopax rusticula* L.

Grant, *P. Z. S.* 1900, p. 499.

Quoted by Hartlaub as coming from North Hainan.—Migrant.

38. *Gallinago stenura* (Bp.).

Grant, *P. Z. S.* 1900, p. 499.

2 ♀♀ Hoihow, 10. ii. 1903, 28. iii. 1902. (No. 47).—Winter visitor.

39. *Gallinago gallinago* (L.).

Grant, *P. Z. S.* 1900, p. 499.

4 ♂♀ Hoihow, 1—6. xii. 1903 (No. 218).—Winter visitor.

40. *Limicola platyrhyncha* (Temm.).

Grant, *P. Z. S.* 1900, p. 499.

♂ Kiungchau, 30. xii. 1902 (No. 27).—Winter visitor.

41. *Tringa alpina pacifica* (Coues).

Tringa alpina Swinhoe, *Ibis*, 1870, p. 363; Hartlaub, *Abhandl. Nat. Ver. Bremen* xiv. p. 377;
Grant, *P. Z. S.* 1900, p. 499

Doubtless the Dunlin obtained in December and January near Hoihow belonged to the Pacific form, and not to the European *T. alpina alpina*. (Cf. Sharpe, *Cat. B. Brit. Mus.* xxiv. p. 609, line 12).—Winter visitor.

42. *Tringa crassirostris* Temm & Schleg.

Grant, *P. Z. S.* 1900, p. 498.

Quoted as a winter visitor by Hartlaub.

43. *Tringa canutus* (L.).

Grant, *P. Z. S.* 1900, p. 498.

A rare winter visitor.

44. *Tringa subarquata* (Güldenst.).

Grant, *P. Z. S.* 1900, p. 498.

Near Hoihow, according to Hartlaub.—Migrant.

45. *Tringa ruficollis* Pall.

Grant, *P. Z. S.* 1900, p. 498.

We have received a series obtained near Hoihow in November (No. 123).—Migrant.

46. *Tringa temminckii* Leisl.

Grant, *P. Z. S.* 1900, p. 498.

A series from Kiungchau, February and March 1; Hoihow, 28, 29. iii. 1902, (No. 28).—Migrant.

47. **Eurhynorhynchus pygmaea** (L.).

Grant, *P. Z. S.* 1900. p. 498.

Hoihow, teste Hartlaub.—Migrant.

48. **Calidris arenaria** (L.)

Grant, *P. Z. S.* 1900. p. 498.

Hungpe (Swinhoe) and Hoihow (Hartlaub).—Migrant.

49. **Totanus nebularius** (Gunn.).

Grant, *P. Z. S.* 1900. p. 497.

Common near Hoihow in winter. We have received a large series from Hoihow, obtained in February, March, October and November. (No. 75).—Migrant.

50. **Terekia cinerea** (Güld.).

Grant, *P. Z. S.* 1900. p. 497.

Obtained near Hoihow in December (Swinhoe).—Migrant.

51. **Tringoides hypoleucus** (L.).

Grant, *P. Z. S.* 1900. p. 497.

We have received a series from Kiungchau (February, March), and Hoihow (November). (No. 18).—Migrant.

52. **Totanus glareola** (L.).

Grant, *P. Z. S.* 1900. p. 497.

We received it from Hoihow and Kiungchan (Nos. 222, 127).—Migrant.

53. **Totanus ochropus** (L.)

♂ ad. Hoihow, 1. iii. 1902; ♀ ad., 1. iv. 1904 (No. 124).

Apparently not noticed on Hainan before.—Migrant.

54. **Totanus stagnatilis** Bechst.

Grant, *P. Z. S.* 1900. p. 497.

Hoihow, common in November (No. 124).—Migrant.

55. **Totanus calidris** (L.).

Grant, *P. Z. S.* 1900. p. 496.

Hoihow, October, November, December (No. 122).—Migrant.

56. **Totanus fuscus** (L.).

Grant, *P. Z. S.*

Hoihow, according to Styan and Hartlaub.—Migrant.

57. **Limosa limosa melauuiroides** Gould.

Limosa limosa Grant, *P. Z. S.* 1900. p. 496.

Hoihow (Hartlaub and Styan).—Migrant.

58. ***Limosa lapponica novaezealandiae*** Gray.

Limosa novae zealandiae Grant, *P. Z. S.* 1900. p. 496.

Hangpe and Hoihow (Swinhoe, Hartlaub).—Migrant.

59. ***Numenius phaeopus variegatus*** (Scop.).*

Numenius variegatus Grant, *P. Z. S.* 1900. p. 496.

Hoihow (Hartlaub, Styan).—Migrant.

60. ***Numenius arquatus lineatus*** Cuv.

Numenius arquatus Grant, *P. Z. S.* 1900. p. 496.

Not obtained by Katsumata.—Migrant.

61. ***Aegialitis alexandrinus*** (L.).

Grant, *P. Z. S.* 1900. p. 495.

A large series from Lei Muimon and Hoihow, January and February (No. 21), one female from Kungchau, February 1902 (No. 139).—Migrant.

62. ***Aegialitis dubius*** (Scop.).

Grant, *P. Z. S.* 1900. p. 495.

2 ♂ ad., 1 juv. Hoihow, November, February (No. 20).—Migrant.

63. ***Ochthodromus geoffroyi*** (Wagl.).

Grant, *P. Z. S.* 1900. p. 495.

1 ♂ Hoihow, January (No. 155).—Migrant.

64. ***Ochthodromus mongolicus*** (Pall.).

Grant, *P. Z. S.* 1900. p. 495.

Chillan River, Hangpe, Hoihow (Swinhoe, Hartlaub).—Migrant.

65. ***Charadrius dominicus fulvus*** Gm.

Charadrius fulvus Grant, *P. Z. S.* 1900. p. 495.

Hoihow, October and November (No. 118).—Migrant.

66. ***Squatarola helvetica*** (L.).

Grant, *P. Z. S.* 1900. p. 497.

2 ♂ Hoihow, November (No. 125).—Migrant.

67. ***Hoplopterus ventralis*** (Wagl.).

Grant, *P. Z. S.* 1900. p. 495.

Lingshuy, S.E. Hainan, 18. iii. (Swinhoe).

* Hartlaub (*Abh. Nat. Ver. Bremen*, 1897. xiv. 3, p. 375) also quotes *N. phaeopus phaeopus*, but most likely in error. (Cf. Grant, *P. Z. S.* 1900. p. 496, who simply repeated Hartlaub's statement.)

68. *Arenaria interpres* (L.).

Grant, *P. Z. S.* 1900. p. 494.

♂ ♀ Hoihow, May 1905 (No. 258).

No doubt a non-breeding migrant, though obtained in May.

69. *Glareola orientalis* Leach.

Sharpe, *Cat. B. Brit. Mus.* xxiv. p. 58.

Tingan and Hoihow, March, May, June, July. Judging from very young specimens obtained in July, this species must breed on Hainan, though it appears not to have been found there by former collectors.

70. *Hydrophasianus chirurgus* (Scop.).

Hydrophasis" chirurgus * (errore!) Sharpe, *Cat. B. Brit. Mus.* xxiv. p. 69.

1 ♀ ad., 3 immat. Tingan, April and May (No. 249).

71. *Esacus magnirostris* (Vieill.).

Orthorhamphus magnirostris Sharpe, *Cat. B. Brit. Mus.* xxiv. p. 22.

3 ♂ ♀ Manchow, December 1903 (No. 236).—Neither this nor *Hydrophasianus* appear to have been noticed in Hainan before.

72. *Grus grus lilfordi* Sharpe.

Grus lilfordi Sharpe, *Cat. B. Brit. Mus.* xxiii. pp. 252-54 (1894—"Eastern Siberia, wintering in the Yangtze basin, probably extending westwards to Turkestan and the River Ob, and wintering in North-west India."—No type fixed!)

Grus grus Grant, *P. Z. S.* 1900. p. 494 ("Common in plains and open country, according to Swinhoe").

1 ♂, 2 ♀ ♀ Cheng-Mai and Fusen, November (No. 154).

There is no doubt that the eastern cranes are lighter than European ones; therefore *Grus grus lilfordi* must be recognised as a subspecies.

Doubtless only a winter visitor to the island.

73. *Dupetor flavicollis flavicollis* (Lath.).

(Cf. *Nov. Zool.* 1908. p. 353.)

Grant, *P. Z. S.* 1900. p. 494.

Fifteen skins from Hoihow, July and September (No. 226).

"Iris burnt umber; bill (upper) black or slate; legs and toes slate-black; claws ditto."

74. *Ardetta sinensis* (Gm.).

Grant, *P. Z. S.* 1900. p. 494.

♀ Hoihow, 25. iv. 1903 (No. 208).

* Sharpe quoted "Wagler, *Isis* 1832. p. 120," but it should be p. 129. It is impossible to alter Wagler's name, *Hydrophasianus*, to "*Hydrophasis*," Wagler expressly giving the German name "*Wasserfasan*" as the Teutonic equivalent of his new name.

75. *Ardetta cinnamomea* (Gm.).

Sharpe, *Cat. B. Brit. Mus.* xxvi. p. 236.

Fifteen skins from Hoihow and Liudon (Rindon), July, March, April, November (Nos. 74, 208).

Appears not to have been noticed on Hainan before.

76. *Ardeola bacchus* (Bp.).

Grant, *P. Z. S.* 1900. p. 494.

Hoihow (February, March), Wupashi, Utoshi (March, April), Katsik (April), Mt. Wuchi (April) (Nos. 81, 197).

77. *Nycticorax magnifica* Grant.

Grant, *P. Z. S.* 1900. p. 493, pl. xxxiii.

This new species was obtained by Whitehead on the Five-Finger Mountains.

78. *Nycticorax nycticorax* (L.).

Grant, *P. Z. S.* 1900. p. 493.

Hoihow and Liudon (No. 156).

79. *Garzetta garzetta* (L.).

Grant, *P. Z. S.* 1900. p. 493.

Hoihow (February, August, September, November), No-tai (April) (No. 80).

80. *Herodias alba timoriensis* (Less.).

Herodias timoriensis Grant, *P. Z. S.* 1900. p. 493.

Common, according to Swinhoe.

81. *Ardea cinerea* L.

Grant, *P. Z. S.* 1900. p. 493.

Kankon (April), Tingan (April, September, June), Hoihow (September, May) (No. 95).

I am in doubt whether these birds or any forms can be separated from the European ones.

82. *Gorsakius melanolopha* (Raffl.).

Ardea melanolopha Raffles, *Trans. Linn. Soc. Lond.* xiii. p. 326 (1822—Sumatra).

Gorsakius melanolophus Sharpe, *Cat. B.* xxvi. p. 168 (mentions Hainan ; authority?).

♂ ad. Mt. Wuchi, 23. iii. 1903 (No. 204).

Juv. Mt. Wuchi, 10. x. 1905 (No. 205).

83. *Butorides javanica javanica* (Horsf.).

Ardea javanica Horsfield, *Trans. Linn. Soc.* xiii. p. 190 (1821—Java).

Mt. Wuchi (April), Tingan (March), (No. 196).

Apparently new to the Hainan list.

84. **Bubulcus coromanda** (Bodd.).

Cancroma coromanda Boddaert, *Tabl. Pl. Enl.* p. 54 (1783.—India).

Tingan (April), Hoihow (November) (Nos. 128, 227).

Apparently not mentioned from Hainan before.

85. **Demiegretta sacra** (Gm.).

Ardea sacra Gmelin, *Syst. Nat.* i. 2, p. 640 (1789.—ex Latham ["Sacred Heron"], Otaheite).

♂ "South Hainan," May 1904 (No. 253).

Also not in the Hainan list, so far.

86. **Leptoptilus javanicus** (Horsf.).

Grant, *P. Z. S.* 1900. p. 493.

Observed by Swinhoe.

87. **Pseudotantalus leucocephalus** (Forst.).

Grant, *P. Z. S.* 1900. p. 493.

Hoihow, North Hainan, according to Hartlaub.

We have received an immature male, shot at Kankon, 10. iv. 1905 (No. 269).

88. **Ibis melanocephalus** (Lath.).

Tantalus melanocephalus Latham, *Ind. Orn.* ii. p. 709 (1790.—India : ex Latham, *Syn. Av. Sup.* p. 240).

Grant, *P. Z. S.* 1900. p. 492 (Hoihow).

♀ ad., Tingan, 12. iv. 1904 (No. 254).

89. **Platalea minor** Temm. & Schleg.

Platalea minor Temminck & Schlegel, *Fauna Japon., Aves*, p. 120. pl. 76 (1850.—Japan).

♀ Hoihow, 10. ii. 1903 (No. 153).

New to Hainan.

90. **Querquedula querquedula** (L.).

Querquedula circia Grant, *P. Z. S.* 1900. p. 492 (Hoihow).

2 ♀ ♀ Tingan, May 1904 (No. 242).

91. **Querquedula crecca** (L.).

Nettion crecca Grant, *P. Z. S.* 1900. p. 492.

North Hainan (Swinhoe).

92. **Mareca penelope** (L.).

Grant, *P. Z. S.* 1900. p. 492.

North Hainan (Swinhoe).

93. *Nettopus coromandeliana* (Gm.).

Grant, *P. Z. S.* 1900. p. 492 (Nodouho, interior of Hainan).

1 "♂" Yon Boi, 28. vi. 1904 (No. 250).

This example is in a very curious plumage: the whole upper surface is purplish as in the female, and the primaries are entirely brown, not white for about one-half, but there is the wide blackish band across the jugulum, as in the adult males.

94. *Dendrocygna javanica* (Horsf.).

Anas javanica Horsfield, *Trans. Linn. Soc.* xiii. p. 199 (1821.—Java).

A series: Tingau (April, May); 1 ♂ Riudon (April) (No. 241).

Apparently new for Hainan.

95. *Phalacrocorax carbo* (? *sinensis*).

Phalacrocorax carbo Grant, *P. Z. S.* 1900. p. 492 (Hoihow).

Hoihow, Tingan, Mt. Wuchi (May, July, August, September, November) (No. 220).

It is difficult to say if an eastern subspecies can be recognised. The individual variation is great, but it seems as if Indian and Chinese birds were smaller.

96. *Sula leucogastra* (Bodd.).

Sula sula Grant, *P. Z. S.* 1900. p. 492.

Swinhoe saw specimens near Tingan.

97. *Pelecanus philippensis* (Gm.).

Grant, *P. Z. S.* 1900. p. 492.

Hoihow (Hartlaub).

98. *Otus lempiji umbratilis* (Swinh.).*

[*Scops lempiji* Horsfield, *Trans. Linn. Soc. Lond.* xiii. p. 140 (1821.—Java!).]

Ephialites umbratilis Swinhoe, *Ibis* 1870. p. 342 (Hainan).

Scops lempiji Grant, *P. Z. S.* 1900. p. 488 (Kiungchau).

♂ Utoshi, March 1903 (No. 45).

5 ♂ ♀ Hoihow, February, March 1902, November 1903 (No. 45).

Namro, March 1903 (No. 45).

♀ Secha, April 1902 (No. 45).

41 ♂ ♀ Liudon, March 1903 (No. 45).

The differences of *Otus lempiji umbratilis* have been very well described by Dr. Sharpe as long ago as 1875, in the second volume of the *Catalogue of Birds*, pp. 93-4. Comparing our Hainan series with a number of *O. lempiji lempiji* from Java and Borneo, it is evident that *umbratilis* differs from the latter by being larger, more heavily vermiculated, and generally more greyish. Mr. Grant (*l.c.*) united *umbratilis* with *lempiji* because, as he said, the type "resembles dark Indian examples of *O. lempiji* and is perfectly similar to specimens of *O. lempiji* from India, Assam." He apparently overlooked that *O. lempiji* was described from Java.

* About the generic name of the "Scops-owls" cf. *Auk* xx. p. 273-5 and *Bull. Amer. Mus.*, xxiii. p. 334.

99. *Glaucidium cuculoides persimile* subsp. nov.

[*Noctua cuculoides* Gould, *Cent. Himal. B.* pl. 4 (1832.—Himalaya).]

Glaucidium whitelyi (non Blyth!) Grant, *P. Z. S.* 1900. p. 488 (Hainan).

15 ♂ ♀ Liudon, March 1903 (No. 182).

♂ ♀ Five-Finger Mts., April 1899 (John Whitehead).

Very similar to *G. cuculoides cuculoides* from India, but with the upper surface distinctly more rufous, especially on the head, back, scapulars and upper wing-coverts. Otherwise perfectly similar, of the same size and markings. The number of bars in the tail varies, being either six or seven, the distal bar counted, while in the Indian form there are seven or eight bars, and in the Chinese *G. c. whitelyi* the bars number six or seven. (Type: ♀ ad., Five-Finger Mts., 25. iv. 1899, John Whitehead coll.)

Mr. Ogilvie-Grant erroneously called the Hainan form "*G. whitelyi*," the latter being much larger and paler than both *G. c. cuculoides* and *G. c. persimile*.

100. *Glaucidium brodiei brodiei* (Burton).

Noctua brodiei Burton, *P. Z. S.* 1835. p. 152 ("Apud Montes Himalayenses").

4 ♂ ♂ Mt. Wuchi, March 1903, November 1905 (No. 175).

♀ Cheteriang, January 1904 (No. 175).

I cannot separate these specimens from Indian ones. The four males are alike; they are brownish, while the female is rufous. The wings of the males measure 82–84, those of the female 96 mm. From India we have brownish, blackish and rufous varieties.—The Formosan *G. pardalota* is very closely allied to *G. brodiei*, and should be treated as a subspecies of the latter. It is slightly larger, appears to be more olivaceous, and the sides of the breast are more distinctly and more widely cross-barred, while the marks on the abdomen are not so large, and have more the form of longitudinal spots. Though known to extend to South China, this species appears to be new for Hainan.

101. *Syrnium newarensis* subsp. (an *caligatus*?)

? *Bubo caligatus* Swinhoe, *Ibis* 1863. p. 218; id., *Ibis* 1864. p. 429 (Formosa).

2 ♂ ♂ ad., 1 ♀ ad., 1 ♀ juv., Mt. Wuchi, October, November 1905 (No. 271).

It is impossible to say for certain whether these birds belong to *caligatus*, without having a series from Formosa to compare.—The specimen from Formosa in the British Museum (the one mentioned in *Ibis*, 1864, p. 429), said to be a female, has the wing 39 cm. long. In coloration it is very near *maingayi* from Malacca, the under-surface and disc being very ochraceous. Our Hainan examples are certainly neither *S. newarensis newarensis*, being too small (the wing of the female about 4 to 6, that of the male about 2 to 4 cm. shorter), nor *S. newarensis indranea*, which is still smaller than the Hainan examples, and which has the under-surface and disc nearly always very strongly ochraceous; nor is it *S. newarensis maingayi*, which is still brighter ochraceous on the under-surface and disc. Our Hainan birds have the disc pale brownish, like *S. newarensis newarensis*, but one has it about as rufous as *indranea*, the latter specimen having also the underside strongly tinged with ochraceous, and barred more narrowly, while in the others the under-surface is whitish and broadly barred. The head is very darkly coloured, in fact almost black in our Hainan examples; but in one of them it is less

deeply coloured, more chocolate. In nearly all Himalayan examples the head is browner than in the Hainan ones, but occasionally it is quite as black, notably in a male collected near Darjeeling, at an elevation of 5500 feet, by Mr. Osmaston. The wings of our adult males from Hainan measure about $34\frac{1}{2}$ to 35 cm., those of the female a little over 39 cm.

We must, therefore, at present recognise :

1. *Syrnium newarensis newarensis* (Hodgs.).

Bulaca newarensis Hodgson, *Asiatic Researches* xix. p. 168 (1836.—Nepal).

Himalayas.

Largest; wing of females reaching 40 and even $41\frac{1}{2}$ cm. Disc as a rule **not** ochraceous. Crown as a rule dark brown, occasionally nearly blackish.—Specimens from Burma and Tenasserim are not typical, being generally slightly smaller and inclined to be more ochraceous.

2. *S. newarensis indralee* (Sykes).

Strix Indralee Sykes, *P. Z. S.* 1834. p. 82 (Woods of the Ghauts).

Ceylon and S. India.

Considerably smaller. The most "typical"—or I should say the most pronounced—examples are those from Ceylon; they have the disc bright ochraceous, the crown not very deep brown. Similar ones occur in Sonthera India, but some of the latter are less typical.

3. *S. newarensis maingayi* Hume.

Strix maingayi Hume, *Stray Feathers* vi. p. 27 (Malacca).

Rather bright ochraceous below, and somewhat small, but somewhat variable. Generally very similar to *indralee*, but sometimes nearer to *S. n. newarensis*. The bars on the abdomen seem to be wider apart than in the allied forms.

? 4. *S. newarensis caligatus* Swinh.

This form stands between *S. n. newarensis* and *indralee*. Possibly it is widely spread, occurring from Formosa throughout parts of China to Hainan and Barma.

A "male" (? perhaps wrongly sexed!) from Fokien (Rickett) with the wing 37 cm., is hardly separable from Himalayan specimens!

Unless series from China and Formosa can be compared, this form must be left in abeyance.

102. *Ketupa zeylonensis* (Gm.).

Strix zeylonensis Gmelin, *Syst. Nat.* i. p. 287 (1788.—Ceylon).

1 (unsexed) Mt. Wuchi, 18. xi. 1905 (No. 270).

1 ♀ Mt. Wuchi, 10. xi. 1906 (No. 270).

As far as one can judge from two specimens, there is no difference between these Hainan specimens and others from Ceylon.

103. *Ninox scutulata japonica* (T. & S.).

Ninox japonica Grant, *P. Z. S.* 1900. p. 488 (Kiungchau, Haosuy).

North Hainan (Swinhoe).

104. **Asio accipitrinus** (Pall.).

Grant, *P. Z. S.* 1900. p. 489.

North Hainan (Hartlaub).

105. **Circus spilonotus** Kaup.

Grant, *P. Z. S.* 1900. p. 489.

1 ♂ ad., 1 ♀ juv. Hoihow, January—February 1903 (No. 163).

1 ♀ juv. (without exact locality), April 1903 (No. 163).

♀ ad. Utoshi, March 1903 (No. 163).

♀ ad. Liudon, March 1903 (No. 163).

♀ juv. Tingan, June 1905 (No. 163).

106. **Circus melanoleucus** (Forst.).

Grant, *P. Z. S.* 1900. p. 489 (North Hainan).

♂ juv. S. Hainan, 12. iii. 1904 (No. 252).

107. **Circus macrourus** (Gm.).

Grant, *P. Z. S.* 1900. p. 489.

Hoihow (Hartlaub).

108. **Circus aeruginosus** (L.).

Grant, *P. Z. S.* 1900. p. 489.

Lei Muimon and North Hainan (Swinhoe, Hartlaub).

109. **Lophospizias trivirgatus rufitinctus** (McClell.).

Lophospiza trivirgata Grant, *P. Z. S.* 1900. p. 489 (Five-Finger Mts.).

5 ♀ ♀, 1 ♂ juv. Mt. Wuchi, November 1906 (No. 219).

♀ juv. No-Tai, September 1902 (No. 93).

♂ juv. Hoihow, November 1903 (No. 219).

♂ ad. Namro, March 1903 (No. 159).

3 ♂ ♂ ad. Lei Muimon, January 1903 (No. 159).

6 ♂ ♂ ad., 2 juv. ; 2 ♀ ♀ ad., 2 juv. Mt. Wuchi, November 1903 (Nos. 159, 219).

♀ ad. Cheteriang, January 1904 (No. 159).

♂ ad. Yon Boi, June 1904 (No. 159).

The specimens from Hainan seem to agree perfectly—at least in size—with North Indian ones, and not with the very much smaller form (*L. trivirgatus trivirgatus*) from the Sunda Islands and Ceylon. Mr. Grant (*Ibis*, 1907, p. 257) makes the same remark regarding the examples from Formosa. It is strange that Mr. Grant did not nominally separate these forms, though he recognised that they differed.

110. **Accipiter badius poliopsis** (an subspec. nov.?).

Astur badius (errore!) Grant, *P. Z. S.* 1900. p. 490 (North and Central Hainan).

2 ♂ ♂ juv. : 1 ♀ ad., 1 juv. Hoihow, January, February, November 1902, July 1905 (Nos. 71, 237).

♀ juv. Lei Muimon, January 1903 (Nos. 71, 237).

♀ juv. No-Tai, October 1902 (No. 237).

3 ♀♀ ad. Cheteriang, January 1904 (No. 237).

8 ♂♂ ad., 3 juv.; 3 ♀♀ ad., 2 juv. Mt. Wuchi, November, December 1905 (No. 237).

This beautiful series agrees very well with the Burmese (and Assamese!) race: *A. badius poliopsis*. Perhaps the cheeks and sides of the head are still darker, more slaty grey, but I dare not separate them at present. They are widely different from *A. badius badius* from Ceylon, which is much smaller and darker.

I am at present acquainted with the following races of this pretty little hawk:

1. *Accipiter badius badius* (Gm.): Ceylon and S. India.—Very small and rather dark grey above!

2. *A. badius cenchroides* (Sev.): Turkestan, Baluchistan, E. Persia, and Punjab, Sind (? winter).—A very pale race.

3. *A. badius brevipes* (Sev.): S.E. Europe, Mountains (Achal Tekke) of Transcaspia, Asia Minor, Persia, Palestine.—The adult male of this race is always recognisable by the ashy grey instead of creamy buff inner edges to the inner webs of the remiges and the distinctly barred under wing-coverts.

4. *A. badius poliopsis* (Hume): Similar to *A. badius badius*, but considerably larger, with the sides of the head darker, more slaty.—Barma and Tenasserim; also the Assam and Cachar specimens belong to this form; I think also those from Hainan must be united with *A. b. poliopsis*, though our fine series of well-prepared skins shows the dark sides of the head still more clearly.

[In using the name *Accipiter* (Schaeffer) for this species I do not mean to emphasise that *A. badius* does not belong to *Astur*, but that *Astur* and *Accipiter* are inseparable.]

111. *Accipiter nisus* subsp. ?

Cf. Grant, *P. Z. S.* 1900. p. 490.—(Central Hainan, Swinhoe).

♀ Mt. Wuchi, 1. xi. 1905 (No. 93).

This example appears to be a juvenile bird, and it is therefore difficult to say to which race it belongs. It is rather pale on the whole, and I think it must belong to the pale race named *pallens* by Stejneger, unless there are more than one paler subspecies in the East. The feathers on the head, hindneck and upper mantle are, however, rather dark, with pale edges.

Our examples of *A. n. melanoschistus* are very different, but we have none in the same plumage as that of the Hainan Sparrowhawk.

112. *Accipiter soloensis* (Horsf.).

Accipiter soloensis Horsfield, *Trans. Linn. Soc. Lond.* xiii. p. 137 (1821—Java).

Nisus manilensis Meyen, *Beitr. Zool.*, in *Verh. Leop. Car. Akad.* viii. Suppl., *Zool.* p. 69, Tab. ix. (1834—Manila!).

2 ♂♂ juv. Mt. Wuchi, November 1905 (No. 278).

Not previously recorded from Hainan.

It will be noticed that I have placed, entirely against tradition dating from 1874, among the synonyms of *A. soloensis* the *Nisus manilensis* of Meyen. When looking at Meyen's plate and description, it occurred to me at once, that the name *manilensis* could not possibly refer to the bird hitherto called *manilensis*, which is

a form of *A. virgatus*, but that it must refer to *A. soloensis*. This conclusion has been verified by Prof. Reichenow, who tells me that the type of *Falco manillensis* in the Berlin Museum has the under wing-coverts uniform without any spots, the cere yellowish, the middle toe as short as in *A. soloensis*, the bill at base as wide as in the latter. There can, therefore, be no doubt whatever that *Falco manillensis* is a synonym of *Accipiter soloensis*. Dr. Sharpe (*Cat. B. i.* p. 151, footnote) professed to have examined the type in the Berlin Museum, but evidently he had not done so properly and made a mistake.

The bird hitherto called *A. manillensis* having no name, it must receive one, and I propose to call it

***Accipiter virgatus confusus* subsp. nov.**

The male differs from that of *A. virgatus virgatus* (Java, Borneo) as follows : It is slightly larger (wing of our ♂ 155 mm.); the upper surface is not so deep slate, but paler, more bluish slate-grey on the head and neck, and the rufous of the breast and sides is not so bright, duller, and with a faint bluish tinge. The blackish grey line along the throat is very distinct.

The female has the upper surface, with the exception of the crown, more brownish, the under surface broadly barred with white, and of a still duller, more brownish rufous colour. Wing of our ♀ 182 mm.

For fuller descriptions of Philippine specimens see Tweeddale, *P.Z.S.* 1878, p. 938, pl. 57 (under the name of "*Accipiter stercoroni*"); Gurney, *List of the Diurnal Birds of Prey* (1884) pp. 173-7; and Grant, *Ibis*, 1896, p. 109.

Type of *Accipiter virgatus confusus* : ♂ ad. Laguna de Bai, Luzon, 9. i. 1895, A. Everett coll. (No. 925, Mus. Tring).

Besides this ♂ we possess a ♀, North Luzon, 5. ii. 1895 (John Whitehead coll.).

The former (the ♂) is a most beautiful, the latter a fairly good skin.

We also have a female obtained at Port Blair, Andamans, 22. i. 1907, by Mr. B. B. Osmaston. It very closely resembles our female from Luzon, but the under wing-coverts are white instead of rusty buff, and it is slightly more bluish above. Grant (*Ibis*, 1896, p. 109) also mentions an Andaman female which closely approaches *A. v. confusus*.

A. virgatus confusus (under the erroneous name of *A. manillensis*) is known to occur in Luzon, Guimaras, Leyte, Mindanao, Mindoro and Negros.

[In *Nor. Zool.* 1895, p. 487, No 22, I recorded *A. virgatus confusus* (under the name of *A. manillensis*) from Mindoro, but the specimens thus recorded belong to *A. soloensis*.]

113. *Accipiter affinis* Gurney.

Accipiter virgatus, subsp. *affinis* (ex Hodgson 1884 : nomen nudum!) Gurney, *List of Diurnal Birds of Prey*, pp. 39 and 168-173 (1884—Himalayas [and Formosa]).

♂ imm. Hoihow, April 1902 (No. 71).

2 ♂♂, 3 ♀♀ ad. and imm. Mt. Wuchi, March, April 1903 (No. 141).

♂ imm. Cheteriang, January 1904 (No. 93).

♂ ad. Mt. Wuchi, November 1906 (No. 278).

The identification of these specimens has led me—like Mr. Ogilvie-Grant in 1896 (cf. *Ibis*, p. 104)—to make an examination of our material of *Accipiter virgatus* and its allied forms, and of the pertaining literature. Doubtless Mr. Grant was

correct in separating *affinis*, *virgatus* and *gularis*, but some of my other conclusions differ from his. According to my investigations these forms must be separated as follows :

I. *Accipiter virgatus virgatus* (Temm.).

Falco virgatus Temminck, *Pl. Col.* 109 (1822—Java. The plate shows an adult male with the thighs barred).

? *Accipiter besra* Jerdon, *Madras Journal Litt. & Sc.* x. p. 84 (1839—description indifferent ; id., *Ill. Ind. Orn.* pls. 4 and 29. Plate 4 shows a young male from South India, pl. 29 a female “after its first moult” ; I should say that the first might be the South Indian form, but the female represented on pl. 29 is troublesome, showing sharp harring on the throat, up to the chin).

Accipiter rufotibialis Sharpe, *Ibis* 1887. p. 437 (Kina Balu on Borneo).

Accipiter virgatus (Temm.) has a male which is dark slate above, the tail slate-grey with three wide dark slate bars ; under-surface bright rusty red, chin whitish buff with brown shaft-stripes along the centre, middle of abdomen white with rufous bars, belly and under tail-coverts white, more or less barred. Thighs either barred or uniform rusty red or rufous. Wing about 150—153 mm.

The adult female is—according to Schlegel, who had a series—either similar to the male in coloration, or barred underneath. The female (in this and all the allied forms) is of course much larger than the male.

The young male appears to be more rufescent than that of the allied forms, the feathers of the upperside margined with bright cinnamon.

This bird inhabits Java, Borneo, Sumatra, and probably Bali, Lombok, Sumbawa and Flores (Everett coll.). A very similar race inhabits Southern India and Ceylon ; in fact, adult males appear to be indistinguishable, only the under wing-coverts appear to be more whitish. Moreover, if the adult female of the true *virgatus* from Java is, in coloration, exactly like the male, and only occasionally barred, as it would appear from Schlegel (*Vogels van Nederlandsch Indië, Valkvogels*, pl. xii., and *Notes Leyden Museum, Accipitres*, 1873, p. 75), and the adult female of the Ceylonese (and South Indian, I should say) bird is never uniform rufous on the breast as Legge says (*B. Ceylon*, p. 28), the two forms would be different. If they are, the form from Ceylon and South India would have to be called, I suppose, *Accipiter virgatus besra*. The material in the British Museum (cf. Grant, *Ibis*, 1896, p. 109) and that in Tring being rather poor, I do not think the question, whether the Sunda Islands form and that from Ceylon and South India are separable, can be decided at present, except by an actual comparison of the series in Leyden from Java with that from India at the British Museum. The more whitish under wing-coverts may be a distinguishing character.

Mr. Ogilvie-Grant, following Sharpe, separated as a “species,” *Accipiter rufotibialis*, but erroneously. The type of *A. rufotibialis* in the Tring Museum agrees very well with a male from Mt. Gedeh in Java ; the typical males of *virgatus* from Java are just as small as the Kina Balu ones, and the coloration of the thighs varies in the Java birds. The under tail-coverts of the type of *A. rufotibialis* are white, as they are in Javanese examples ; Dr. Sharpe described them as chestnut, but this must have been a pen-slip or misprint.

1A. *Accipiter virgatus confusus* Hartert.

See above, p. 209.

2. *Accipiter affinis* Gurney.

Accipiter virgatus, subsp. *affinis* (ex Hodgson, Gray's *Zool. Misc.*, 1884. p. 81, nomen nudum!) Gurney, *List of Diurnal B. of Prey*, pp. 39 and 168-73—Himalayas [and Formosa].

There can be no doubt that this is quite a different bird from both *A. virgatus* (*besra*, *confusus*) and *A. gularis*, and I do not think it can be considered a subspecies of either.

It is a much larger bird than *A. virgatus* (wing of adult males about 170—176 mm.); the sexes are alike in coloration. The adult bird is dark slaty-brown above, the back browner, the crown darker and more slate-colour, the bases of the feathers on the nape and hindneck white and more or less showing through, if the feathers are only slightly disarranged. The throat is white with wide blackish brown longitudinal stripes, especially along the centre and laterally; the crop is broadly striped, but the rest of the lower surface is widely barred with brown on a white ground. Young birds have the upper surface more brownish, and the brown markings on the upperside are longitudinal or in the form of roundish spots, not cross-bars.

Mr. Ogilvie-Grant (*Ibis*, 1895, p. 105) attaches importance to the "difference in the shape of the wing, which, though mentioned by Schlegel (*Mus. Pays-Bas*, ii, *Astures*, pp. 32-33, 1862), has been overlooked by subsequent writers." He continues that in *A. gularis* the fourth primary is considerably longer than the fifth, while in *A. virgatus* and its allied forms the fourth quill is only slightly longer than the fifth. I find, however, that this character varies considerably and is therefore not reliable.

Mr. Grant apparently overlooked that Schlegel wrote more fully on these hawks in 1873 (*Accipitres*, p. 75). There he united *gularis* and *virgatus*, thus clearly showing that he did not consider his former statements to be of any value.

Accipiter affinis appears to inhabit the Himalayas. It is found also in Formosa and Hainan, but it appears to be a winter visitor on these islands, and probably migrates down from the Himalayas in the cold season.

3. *Accipiter gularis* (Temm. & Schleg.).

Astur gularis Temminck and Schlegel, Siebold's *Fauna Japonica*, *Aves*, p. 5, pl. 2 (1844*—Japan).

Accipiter nisoides Blyth, *Journ. As. Soc. Bengal* xvi, p. 727 (1847—Malacca!).

Accipiter stervensoni Gurney, *Ibis* 1863, p. 447, pl. xi (China).

This hawk appears to be quite distinct from both *virgatus* and *affinis*—and I think for the present it should be treated as a species, though it might be a subspecies of *A. virgatus*, but not of *affinis*.

The adult males are rather variable in the coloration of the under-surface, the latter being either greyish white with a creamy or buff tinge, or reddish fawn-coloured, sometimes even bright fawn, and the bars are either very distinct and of a greyish brown or obsolete. The throat is always entirely unbarred, the feathers along the middle having blackish shafts, forming an irregular narrow central line. —Wing about 158—162 mm.—The adult female is of course much larger than the male, and the under-surface is sharply barred up to the throat, which is white, unbarred, with a narrow mesial line of dark brown. It differs from *A. affinis* in the barring being narrower and reaching to the throat, in the absence of wide

* The first twenty-eight pages appeared in 1844 and not 1850

and bold longitudinal stripes on the jugulum, and in being smaller; the male being but very little smaller than the male of the latter, the female in size between the male and female of *A. affinis*. The female of *A. gularis* resembles that of *A. nisus*, but it is even smaller than the male of the latter, the upper surface is somewhat darker, the throat has only one irregular mesial line instead of a number of stripes, and the under wing-coverts are tinged with rusty buff.—The young birds are, of course, striped or spotted instead of barred.

A male shot by the late Bingham at Nyaung-pyne in the Northern Shan States, Upper Burma, on December 10, 1900, is a rather aberrant one, unless it belongs to another, hitherto undescribed race. The mesial stripe along the pure white throat is 2—3 mm. wide, and extends down over the jugular region, and the sides of the body are half barred and half striped with pale grey on a rusty brown ground, so that very little remains of the whitish colour which prevails in the middle of the breast and abdomen.

This bird breeds in East Siberia (Lake Baical, Dauria, or Transbaicalia), North China and Japan, and it migrates to the south, thus being found together with *A. virgatus*, in Borneo, Java, and India.

(Another sparrowhawk from the East is *Accipiter rhodogaster* (Schleg.), from Celebes. It is well described by Schlegel, Gurney, Sharpe, and last by Meyer and Wilesworth, in their great book on the *Birds of Celebes*, i. p. 25. I do not see why this should be a subspecies of *A. virgatus*, but there can be no doubt whatever that *A. rhodogaster sulaensis*, from the Sula Islands, is a subspecies of *rhodogaster*. Our only adult example of *sulaensis* differs from our single female of *A. rhodogaster rhodogaster* in the thighs being vinaceous cinnamon, instead of grey, as in the latter, and perhaps the cheeks are less pure grey and more tinged with rufous. Messrs. Meyer and Wilesworth, with exceptional inconsistency, have named this form binomially, "*Accipiter sulaensis*," at the same time stating that it varies geographically in Sula in the same manner as *Spilornis rufipectus sulaensis*, which they name trinomially.—The different colour of the thighs in our adult *A. rhod. sulaensis* appears to be of no importance, as Schlegel figures his *sulaensis* with grey thighs.)

114. *Buteo buteo plumipes* Hodgs.

Buteo plumipes Hodgson, *P. Z. S.* 1845, p. 37 ("Procured in the central hilly region," sc. of Nepal!); Grant, *P. Z. S.* 1900, p. 490.

♀ Hoihow, February 1902 (No. 68).

2 ♂♂, 1 ♀ Mt. Wuchi, November 1905 (Nos. 198, 203).

115. *Spizaetus nipalensis* (Hodgs.).

Grant, *P. Z. S.* 1900, p. 490. (One specimen was procured by Whitehead.)

1 ♂, 1 ♀ Mt. Wuchi, November—December 1905 (No. 276).

116. *Spilornis cheela rutherfordi* Swinh.

Spilornis rutherfordi Swinhoe, *Ibis*, 1870, p. 85 (Hainan).

Spilornis melanotis Grant, *P. Z. S.* 1900, p. 491.

14 ♂♂ ad. et juv. Mt. Wuchi, April 1903; October, November 1905. (Nos. 162, 280.)

♀ ad. Lei Muimon, January 1903 (No. 162).

5 ♂ ♀ ad. Cheteriang, January 1904 (No. 162).

♂ juv. Mt. Wuchi, November 1906 (No. 162).

It seems that the race called *S. rutherfordi* inhabits the mountains and hill-tracts of Assam, Cachar and Burma, and winters in Hainan.

117. *Milvus melanotis* Temm. & Schleg.

Grant, *P. Z. S.* 1900. p. 491. (Abundant throughout Hainan, teste Swinhoe.)

A large series, ♂ and ♀, mostly young, from Hoihow, Tingan, Cheteriang, Wupashi, Katsik, January, February, April, July 1903—1905. (Nos. 68, 198, 260.)

118. *Lophotriorchis kieneri* (Geoffr.).

A fine ♂ of this species was obtained at Mt. Wuchi, 18. xi. 1905 (No. 262).

Not recorded from Hainan.—It would be interesting to know whether these birds breed on Hainan, the Malayan Islands, etc., or whether they are migrants from the north.

119. *Cerchneis tinnunculus japonicus* (Temm. & Schleg.).

Falco tinnunculus japonicus Temminck & Schlegel, in Siebold's *Fauna Japonica*, *Aves*, p. 2, pl. 1, 2.*)

Cerchneis tinnunculus Grant, *P. Z. S.* 1900. p. 491. (Frequent throughout Hainan.)

♀ Hoihow, February 1903 (No. 113).

♂ ♀ Lei Muimon, January 1903, February 1902 (No. 113).

♀ Cheteriang, January 1904 (No. 113).

♀ Hainan, May 1, 1905 (No. 113).

All these specimens appear to belong to the race with dark, heavily marked upper surface. This race, though very close to the Indian resident race named "*saturatus*," differs from the latter in having a less reddish (paler) under-surface and heavier black marks on the back. Whether this form breeds on Hainan or not I cannot say.

Besides these five examples there is one, shot at Cheteriang 9. i. 1904, which is quite light in colour, and which, I think, must doubtless be a migrant from the north, and belongs to another subspecies.

120. *Falco peregrinus leucogenys* Brehm.

Falco communis Grant, *P. Z. S.* 1900. p. 491. (Recorded from one male, December, by Hartlaub.)

♂ Tingan, 10. vi. 1905 (No. 259).

Although obtained in June, I do not think that the Peregrine Falcon breeds on Hainan. I consider this specimen to belong to the Siberian form, *F. peregrinus leucogenys*, which migrates southwards in winter, and the present example, which is in moult, must have remained behind for some reason.

121. *Baza lophotes* (Temm.).

Falco lophotes Temminck, *Pl. Col.* i, pl. x. (1823).

One fine adult male from Namro, 12. iii. 03 (No. 165).

"Bill and feet plumbeous; iris verditer blue" (Katsumata).

* This name has been overlooked in the *Cat. B. Brit. Mus.* i. p. 425, and again in the *Hand-list* of Dr. Sharpe.

Not previously recorded from Hainan.

This magnificent species is distributed from the Himalayas (Nepal) to the Malay Peninsula and Cochin-China.

122. *Baza jerdoni* (Blyth)?

Lophastus Jerdoni Blyth, *Journ. As. Soc. Bengal* xi p. 464 (1842).

4 ♂ ♀ Mt. Wuchi, October, November 1905 (No. 279).

These birds appear to belong to the rare *Baza jerdoni*, recorded only from a few specimens from Sikkim, Tenasserim and Manbhoom in South-western Bengal, and, if *Baza sumatrensis* Lafr. and *Baza incognita* Hume are the same (about which I am by no means certain), in the Malay Peninsula and Sumatra. The old birds, of which there are two, have the ear-coverts pale grey with brownish edges, the crown and hindneck rusty brown with blackish centres to the feathers. Wings about 33 cm., but being in moult not measurable with absolute exactness. The upper mandible of the beak has two distinct "teeth"; the longest crest-feathers have white tips. "Iris bright orange."

123. *Polioetus humilis major* Meyer & Wigl.

Polioetus humilis major Meyer & Wiglesworth, *B. Celebes* i. p. 44 (1898—"Sub-Himalayan Ranges").

Polioetus humilis Grant, *P. Z. S.* 1900, p. 491 (Liuwowan, teste Styan).

1 ♂ Mt. Wuchi, 13. xi. 1905 (No. 277).

2 ♂ ♂, 1 ♀ Mt. Wuchi, November 1906 (No. 277).

The larger race inhabiting the southern slopes and lower forests of the Himalayas has justly been named *P. humilis major* by Messrs. Meyer & Wiglesworth, as the name *ptumbeus* of Hodgson is a "nomen nudum" of uncertain application.

Though we have no proof of this, I have no doubt that this bird is only a winter visitor on Hainan, migrating southwards in the cold season. The wings of our Hainan specimens measure: ♀ 460, 3 ♂ ♂ 445, 430, 426 mm.

124. *Pandion haliaetus haliaetus* (L.).

Grant, *P. Z. S.* 1900, p. 491 ("Harbours of Hainan," Swinhoe).

♂ Lei Mnimon, January 1903 (No. 161).

♀ S. Hainan, May 1904 (No. 161).

4 ♂ ♀ Mt. Wuchi, October, November 1905, November 1906 (No. 161).

The birds from Hainan belong to *P. h. haliaetus*, and not to *P. h. leucocephalus*.

125. *Eurystomus orientalis calonyx* Sharpe.

Eurystomus calonyx Sharpe, *Cat. B. Brit. Mus.* xvii. p. 38, pl. ii. fig. 2 (1892—"Amoorland, Manchuria and North China in summer, apparently wintering in Tenasserim, the Malayan Peninsula and Borneo. Throughout the Himalayas from Kumaon to Assam"); Grant, *P. Z. S.* 1900, p. 488 (Hoihow, 29. ix., teste Styan).

♂ ♀ ad. Secha, April 1902 (No. 56). Bills large, culmen 33—34 mm.

♂ ♀ ad. Hoihow, 25. viii., 1. ix. 1903 (No. 56). Bills smaller, culmen 27.5 and 32 mm.

♂ juv. Hoihow, 10. viii. 1903 (No. 56).

♂ juv. No-Tai, 27. ix. 1902 (No. 56).

♂ juv. Mt. Wuchi, Central Hainan, 15. xi. 1906 (No. 56).

As far as I can see, the two specimens from Secha are true *calonyx* as described by Sharpe, while I am doubtful about the pair from Hoihow and the young birds. If *calonyx* is different, it can only be the northern subspecies of *E. orientalis*.

126. *Halcyon pileata* (Bodd.).

Alcedo pileata Boddaert, *Tabl. Pl. Enl.* p. 41 (1783—ex Daubenton, China).

Halcyon pileatus Grant, *P. Z. S.* 1900. p. 488 (S.W. and N. Hainan).

3 ♂♂, 2 ♀♀ Hoihow, February and March 1902, October 1903 (No. 37).

♂ Kiungchan, 6. iii. 1902 (No. 37).

127. *Halcyon smyrnensis fusca* (Bodd.).

Halcyon smyrnensis Grant, *P. Z. S.* 1900. p. 488 (various parts of Hainan).

7 ♂♂ November 1905, 1906 (No. 114).

2 ♂♂ Mt. Wuchi, October 1905 (No. 114).

No-Tai, 30. ix. 1902 (No. 114).

♂♀ Lei Muimon, 10, 14. i. 1903 (No. 114).

The Indo-Chinese form of this widespread Kingfisher is much smaller and darker than *H. s. smyrnensis*, as has often been explained; nevertheless our colleagues Sharpe (*Hand-list* ii. p. 56) and Grant (*loc.*) do not separate the two forms.

Dr. von Madarász (*Annales Mus. Nat. Hungar.* 1904) has described two new subspecies of *Halcyon smyrnensis*. One of these is the form inhabiting Ceylon, and he named it *Halcyon generosa*. This subspecies is fairly distinct, being smaller, and the brown on the sides of the neck and breast is deeper.

Besides this, Dr. von Madarász described a single female from Malacca (Singapore) under the name of *Halcyon perpulchra*. This seems to be unfounded, and I believe that all the continental forms from Malabar to China can be united under the name of *H. s. fusca*, which originally referred to Malabar birds, and which Dr. von Madarász appears to have overlooked, as he did not mention it at all.

128. *Ceyx tridactyla* (Pall.).

Grant, *P. Z. S.* 1900. p. 487.

Apparently found on Hainan for the first time by Whitehead.

2 ♂♂, 2 ♀♀ Yon Boi, 30. v., 7. vi. 1904 (No. 283).

These specimens agree with Indian examples; only one of the "females" (?) has the wing 60 mm. long, a length not reached by any of the others, nor by any Indian specimen in the Tring Museum.

129. *Ceryle lugubris guttulata* Stejn.

Ceryle guttulata Stejneger, *Proc. U.S. Nat. Mus.* xv. pp. 294, 295 (Continental India and China); Hartert, *Nov. Zool.* 1901. p. 88.

Ceryle lugubris continentalis Hartert, *Nov. Zool.* 1900. p. 534 (Himalaya and Assam); corr. *Nov. Zool.* 1901. p. 88.

Ceryle lugubris Grant, *P. Z. S.* 1900. p. 487. ("Interior of South-west Hainan": teste Styan.)

2 ♂♂, 2 ♀♀ Mt. Wuchi, Central Hainan, November 1905 (No. 275).

2 ♂♂ Mt. Wuchi, November 1906 (No. B 275).

These specimens agree perfectly with others from Sikkim and Assam, except that the bill appears to average somewhat larger (?).

It is strange that Dr. Sharpe, like myself, overlooked Stejneger's name, and that he did not distinguish the two forms, which are quite as distinct as many African "species" described by himself and other recent authors, especially as he had noticed the differences as long ago as 1869, when he wrote his monograph of the Kingfishers.

130. *Ceryle rudis insignis* subsp. nov.

Ceryle varia (nec Strickland!) Grant, *P. Z. S.* 1900, p. 487. ("Common throughout Hainan."—Swinhoe).

4 ♂♂, 4 ♀♀ Hoihow, February and November 1903 (No. 82).

♀ Lei Muimon, 15. xii. 1902 (No. 82).

♂♀ Katsik, 9. iv. 1903 (No. 82).

1 ♂, 3 ♀♀ Tingan, April 1902 (No. 82).

Finding that the Hainan specimens differ from the Indian form in having larger bills (generally about 1 cm. longer), I was obliged to give a new name to them, as above. Type: ♂ ad. Hoihow, 13. xi. 1903, Tring Museum, No. 8203.

The synonymy of these spotted Kingfishers has been confused for about half a century or more! The name *rudis* (*Alcedo rudis* Linnaeus, *Syst. Nat.* ed. x. p. 116, 1758) was given to specimens from "Persia and Egypt." The name "*rudis*" was taken from Hasselquist, who obtained the bird in Egypt, while the locality Persia was added from Edwards' work. The "terra typica" of the name "*rudis*" is therefore Egypt.

Assuming—for the present—that only one form of these Kingfishers is found in Africa, Swainson's names "*bitorquata*" (evidently an error for *bicincta*) and *bicincta*, which refer to the West African birds, as well as *leucomelas* of Brehm (Egypt), are synonyms of *rudis*, and so is *Ceryle varia* of Strickland. By an oversight the name "*varia*" had been used by several authors for the Indian form, and this has been done universally since 1892, when Dr. Sharpe employed it for the eastern birds. Strickland, however (*Ann. & Mag.* vi., 1840, p. 418), when writing about the various forms confounded under the name of "*Alcedo rudis* L.," said, "... And the *Ispida ex albo et nigro varia* Brisson (*Buff. Pl. Enl.* 716) forms a third species. This last never having received a specific name, I recommend that it be called *varia*. It seems to be identical with the Indian species, but of this I am not certain, never having examined a Cape specimen." Now Brisson and Buffon describe and figure specimens from the Cape of Good Hope, and it is as clear as anything that Strickland named the South African bird "*varia*." The error of Dr. Sharpe probably arose from Strickland's note in the *P. Z. S.* 1842, where the author transferred his name "*varia*" to the "Eastern representative of the *C. rudis* of Europe and Africa." Such shifting of the meaning of names, however, cannot be accepted, and the Indian bird must therefore be called

Ceryle rudis leucomelanura Reichenb.,

as Reichenbach (*Handb. Alced.* p. 21, Taf. 499b, fig. 3488, 1851) gave the latter name to the Ceylon bird.

The Chinese larger-billed subspecies not having received a name, I named it *Ceryle rudis insignis*, as above.

131. *Alcedo ispida bengalensis* Gm.

Alcedo ispida (!) Grant, *P. Z. S.* 1900, p. 487. ("Common in open country."—Swinhoe.)

5 ♂ ♀ ad. Hoihow, March 1902 (No. 16).

7 ♂ ♀ ad. Kiungehan, February and March 1902 (No. 16).

All these specimens have comparatively long bills, but I find them equally long in many Indian examples.

132. *Alcedo grandis* Blyth.

Grant, *P. Z. S.* 1900, p. 487. (First record for Hainan.)

2 ♂ ♂ Mt. Wuchi, 15, 20, xi. 1905 (No. 272).

♂ ♀ Mt. Wuchi, 9, 16, xi. 1906 (No. B 272).

The specimens from Hainan are apparently indistinguishable from the topotypical North Indian birds. The entire bill is blackish in the male, while in the female the lower mandible is red.

133. *Upupa epops indica* Reichenb.

Upupa indica Reichenbach, *Handb. Spec. Orn., Sauroriorae*, p. 320, Taf. DXCVI, Fig. 4037 (1854—"Bengalen, Nepal, Nilgerris, Tenasserim." "Bengal" is to be recognised as "terra typica").

Upupa indica Grant, *P. Z. S.* 1900, p. 487. ("Common throughout Hainan."—Swinhoe.)

Probably this form should be more correctly called *U. e. longirostris*, but I am not able, at present, to decide if *longirostris* (from Burma, and eastwards to Hainan) is separable from *indica* (from continental India). On the other hand, the smaller Ceylon form (*ceylonensis* Rehb.) is in no case "identical" with the large one from Burma and Hainan. It is true that Salvin (*Cat. B.* xvi. p. 10) and Blanford (*B. India* iii. p. 161) united all these forms, but as both these authors, and especially the latter, did not distinguish geographical forms, unless they "sprang into their eyes," this need not disturb us.

We have received the following series :

7 ♂ ♀ No-Tai, September 1902 (No. 25).

3 ♂ ♂ Hoihow, February 1903 (No. 25).

2 ♂ ♂ Lei Muimon, 30. xii. 1902, 10. i. 1903 (No. 25).

1 ♀ Kiungehan, 26. xii. 1902 (No. 25).

134. *Nyctiornis athertoni* (Jard. & Selby).

Grant, *P. Z. S.* 1900, p. 486. (For the first time recorded from a specimen obtained by Whitehead.)

1 ♂, 2 ♀ ♀ Cheteriang, January 1904 (No. 110).

5 ♂ ♀ Lei Muimon, January 1903 (No. 110).

2 ♂ ♀ juv. Yon Boi, June 1904 (No. 243).

3 ♂ ♂, 1 ♀ No-Tai, September 1902 (No. 110).

1 ♀ Mt. Wuchi, 19. xi. 1905 (No. 110).

The two young birds show that this species breeds on Hainan. It is remarkable that the tails of many of the Hainan specimens are very short. In the females the tails measure from 128 to 132, and in one case to 134; in the males from 126 to 130 mm. In Sikkim the tails of four unsexed specimens measure 128 to 140, in Tenasserim males about 135 (worn), females 127, Assam and Cachar males 138 (in one case 135) to 141, females 137 mm.

135. *Merops philippinus* L.

Merops philippinus Linnaeus, *Syst. Nat.* ed. xiii, i. p. 183, No. 5 (1767—"Habitat in Philippinis."—

This species was already enumerated in the ed. xii. p. 183, but the name had been—probably by a printer's error—omitted. On account of the existence of the Ed. xiii., printed at Vienna in 1767, Gmelin's edition should never have been called the thirteenth edition, and must simply be quoted as "Gmelin, *Syst. Nat.*").

1 ♀ No-Tai, 28. ix. 1902 (No. 100).

14 ♂ ♀ Manchow, Hainan, May 1904 (No. 100).

Not previously recorded from Hainan.

136. *Merops bicolor sumatranus* Raffl.

Merops sumatranus Grant, *P. Z. S.* 1900, p. 486.

9 ♂ ♀ Yon Boi, May and June 1904 (No. 239).

5 ♂ ♀ South Hainan, May 1904 (No. 239).

This form differs from *M. bicolor bicolor* from the Philippines not only in the deep chestnut colour of the head and mantle, and the constantly blue throat, but also in the colour of the central rectrices, which are pale blue towards the end without black tips. Nevertheless we may look upon it as the geographical representative of *M. b. bicolor*.

Eight clutches of four eggs each were found in holes in the ground on May 30 and June 4. The glossy white eggs measure from 21.5×19 , 22.2×19.6 , 22.2×20.1 , and 24×20.1 to 24.2×20 and 24.6×20.5 mm.

137. *Harpactes erythrocephalus hainanus* Grant.

Harpactes hainanus Grant, *P. Z. S.* 1900, p. 485 (Hainan).

Whitehead obtained this bird on the Five-Finger Mountains, Tetsu at Lei Mnimon in south-west Hainan.

Katsumata sent us : 15 ♂ ♀ Mt. Wuchi, March and April 1903 (No. 180).

This subspecies differs from *H. erythrocephalus erythrocephalus* by having a slightly shorter wing, generally a darker red head, throat, and jugulum, conspicuously darker brown upperside and somewhat lighter, less brilliant abdomen. The female differs from that of *H. erythrocephalus erythrocephalus* in being darker brown.

138. *Rhopodytes tristis hainanus* subsp. nov.

Rhopodytes tristis Grant, *P. Z. S.* 1900, p. 485.

13 ♂ ♀ No-Tai, March, April, and September 1902 (No. 88).

The specimens from Hainan agree with *Rh. tristis tristis* except that they are smaller : the wing is considerably shorter, measuring from 150 to 160 mm., against 165 to 176 mm. in *Rh. tristis tristis*, and the tail is from 4 to 7 cm. shorter. The coloration is the same, except that the forehead is generally somewhat darker.

Type of *R. tristis hainanus* : ♂ ad. 26. ix. 1902 (No. 88).

139. *Centropus bengalensis* (Gm.).

Grant, *P. Z. S.* 1900, p. 485.

2 ad., 1 juv. Hoihow, March, April, September 1902 (No. 70).

2 juv. Hoihow, January, October 1903 (No. 70).

1 ♀ No-Tai, 1. x. 1902 (No. 70).

1 ♀ ad., Mt. Wuchi, 24. v. 1903 (No. 70).

2 juv. Taibinshi, 15. iii. 1903 (No. 70).

1 ♀ Lei Muimon, 10. i. 1903 (No. 70).

These birds seem to agree well with Indian specimens.

Two nests containing two and three eggs were found at the end of May and beginning of June, standing eighteen inches and two feet above the ground. The eggs are white with very little gloss. They measure 30.3×24.5 , 31×24.5 , 30.5×23.5 , 30.5×25.5 , and 31×25 mm.

140. *Centropus sinensis sinensis* (Steph.).

Centropus sinensis Grant, P. Z. S. 1900, p. 485.

6 ad., 16 juv. Hoihow, February, March, April 1902, October 1903 (Nos. 69, 92).

A nest, standing two feet above the ground, was found on June 1, 1904, containing three eggs. They are pure white, slightly glossy, and measure 35.5×28 , 34.5×27.2 , 35×28 mm.

141. *Eudynamis orientalis honoratus* (L.).

Eudynamis honorata Grant, P. Z. S. 1900, p. 484.

1 ♂ ad. Namro, 13. iii. 1903 (No. 79).

2 ♂♂ ad., 1 ♂ imm., 3 ♀♀ Hoihow, March and April 1902 (Nos. 73, 79).

2 ♂♂ ad., 3 ♂♂ imm., Hoihow, February, May, June, November 1903 (No. 209).

1 ♀ Lei Muimon, 26. xii. 1902 (No. 73).

1 ♂ ad., 4 ♀♀ Lindon, March 1903, March 1904 (No. 73).

1 ♀ No-Tai, 23. ix. 1902 (No. 73).

5 ♂♂ ad., 4 ♀♀ Utoshi, March 1903 (Nos. 73, 79).

These birds agree perfectly with Indian *E. o. honoratus*, except that the wing is generally slightly—about 10 to 15 mm.—longer. The colour of the females is just as whitish as in Indian birds. I do not, therefore, endeavour to separate this form, especially as the size is not constant.

142. *Surniculus lugubris* (Horsf.).

Cuculus lugubris Horsfield, Trans. Linn. Soc. Lond. xiii. p. 179 (1820—Java).

1 ♀ No-Tai, 27. ix. 1902 (No. 119).

The wing of this specimen is very long: 136 mm. Perhaps there is a smaller and a larger form of *S. lugubris*, but I cannot at present discuss this question.

The species is new to Hainan.

143. *Chrysococcyx maculatus* (Gm.).

Chalcococcyx maculatus Grant, P. Z. S. 1900, p. 484.

1 ♀ ad. No-Tai, 27. ix. 1902 (No. 101).

A single male was obtained on the Five-Finger Mountains by Whitehead. That and our female are the only two specimens recorded from Hainan.

I see no reason whatever for separating the genera *Chrysococcyx* and *Chalcococcyx*.

144. *Cacomantis merulinus* (Scop.).

Grant, *P. Z. S.* 1900, p. 484.

3 juv. Hoihow, 7. ii. and 30. xi. 1903 (No. 131).

1 ♂, not quite adult, Lei Muimon, 20. xii. 1902 (No. 131).

1 ♂, nearly adult, 1 ♀ juv. Utoshi, 20, 21. iii. 1903 (No. 131).

1 ♂ juv., Mauchow, December 1903 (No. 131).

145. *Hierococcyx sparveriioides* (Vig.).

Cuculus sparveriioides Vigors, *P. Z. S.* "1831," p. 173 (1832—Himalaya).

7 ♂♂ ad., 1 ♂ juv., 1 ♀ juv., Mt. Wuchi, March and April, and November and December 1905 (No. 177).

(The genus *Hierococcyx* might perhaps be united with *Cuculus*).

This species is new to the ornithologists of Hainan. It is probably only a winter visitor to the island.

146. *Cuculus micropterus* Gould.

Grant, *P. Z. S.* 1900, p. 484.

Styan and Hartlaub recorded this species, and John Whitehead obtained it on the Five-Finger Mountains.

147. *Cuculus intermedius* Vahl.

A young bird (♀), which apparently belongs to this species, was obtained on Mt. Wuchi, 15. x. 1905 (No. 282).

148. *Palaeornis fasciatus* (Müll.).

Palaeornis fasciata Grant, *P. Z. S.* 1900, p. 484.

7 ♂♂ ad., 3 ♀♀ Utoshi, March 1903 (No. 207).

1 ♂ ad. Mt. Wuchi, 8. iv. 1903 (No. 207).

4 ♀♀ and juv., Namro, March 1903 (No. 207).

(Specimens from Nias Island, west of Sumatra, are enormously large. They appear to belong to *Palaeornis fasciatus major* Richmond, described from Pulo Bali, north of Nias.)

149. *Cyanops faber* (Swinh.).

Grant, *P. Z. S.* 1900, p. 483.

10 ♂♀ Secha, April, May, and August 1902 (No. 52).

150. *Dendrocopus major cabanisi* (Malh.).

(? Smaller subspecies.)

Dendrocopus cabanisi Grant, *P. Z. S.* 1900, p. 482.

5 ♂♂, 5 ♀♀ Cheteriang, January 1904 (No. 132).

2 ♂♂, 1 ♀ Mt. Lei Muimon, January 1903 (No. 132).

There appear to be two or three races of Great Spotted Woodpeckers in China (and Hainan)—a largest one in the North, an intermediate one in Middle and South China, and a smallest one in Hainan; but the intermediate form appears to be so variable—some examples agreeing with northern, others with southern birds—that I do not venture to separate these forms at present.

151. *Micropternus brachyurus holroydi* Swinh.

Micropternus holroydi Swinhoe, *Ibis* 1870. p. 95 (Hainan); Grant, *P. Z. S.* 1900. p. 483.

12 ♂♀ ad. No-Tai, 20—30. ix. 1902 (No. 54).

2 ♂♂, 1 ♀ ad. Secha, 9. iv. 1902 (No. 54),

(All forms of the genus *Micropternus* are geographical representatives of *Micropternus brachyurus*.)

152. *Iyungipicus scintilliceps swinhoei* subspec. nov.

Iyungipicus kaleensis Grant, *P. Z. S.* 1900. p. 483.

2 ♂♂, 2 ♀♀ No-Tai, September, October 1902 (No. 61).

3 ♂♂ Secha, April, May 1902 (No. 61).

2 ♂♂ Lindon, March 1903 (No. 61).

1 ♂ Utoshi, 21. iii. 1903 (No. 61).

2 ♀♀ Lei Mnimon, 25. xii. 1902, 1. i. 1903 (No. 61).

In addition to this fine series collected by Katsumata, I compared a pair collected by Whitehead on the Five-Finger Mountains, and a male collected by Tetsu, the late Schmacker's collector, at "Lahowan," 7. xii. 1891.

A comparison with seventeen specimens from Formosa, the original locality of *kaleensis*, shows that the Hainan specimens have smaller, generally shorter, and always less powerful, thinner beaks than *kaleensis*. The wings average also less, measuring 92—97 mm. in the Hainan series, against 95 to 101.5 in the Formosan birds.

There are no constant differences in coloration. I name the Hainan race

Iyungipicus scintilliceps swinhoei

in memory of the great ornithologist who has been responsible for so many discoveries in China, and for practically all our knowledge of the interesting ornithology of Hainan and Formosa, until Schmacker's Chinese collector (Tetsu), Whitehead, and our Japanese traveller (Katsumata) ascended the mountains of Hainan, and Goodfellow and Alan Owston's Japanese skimmers explored the highlands of Formosa.

Type of *I. scintilliceps swinhoei*, ♂ ad. No-Tai, 29. ix. 1902.

153. *Lepocestes sinensis hainannus* Grant.

Grant, *Ibis* 1899. p. 585; *P. Z. S.* 1900. p. 483.

10 ♂♂, 6 ♀♀ Mt. Wuchi, March 1903, November 1905 and 1906 (Nos. 189, B. 189).

This woodpecker is closely allied to, though easily distinguishable from, *L. sinensis* Rickett of Fokien.

154. *Chrysophlegma styani* Grant.

Grant, *Ibis* 1899. p. 585; *P. Z. S.* 1900. p. 482.

6 ♂♂, 4 ♀♀ Mt. Wuchi, November 1906 (No. B. 210).

1 ♂ Mt. Wuchi, 18. xi. 1905 (No. 210).

1 ♀ Mt. Wuchi, 25. v. 1903 (No. 210).

I expect that *C. styani* and *ricketti* are subspecies of *C. wrayi* from the

Malay Peninsula, but we have no specimens of *richetti* and only a female of *urayi* in the Tring Museum. The differences of these forms are explained by Mr. Ogilvie-Grant (*l.c.*).

155. *Gecinus chlorigaster longipennis* subsp. nov.

1 ♀ Cheteriang, 11. i. 1904 (No. 211).

1 ♀ Mt. Wuchi, 22. v. 1903 (No. 211).

5 ♂♂, 4 ♀♀ Mt. Wuchi, November 1906 (No. B. 211).

This splendid new subspecies—species for most ornithologists, but in my opinion doubtless the representative of *Gecinus chlorigaster chlorigaster* of South India and Ceylon, and of *G. chlorigaster rodgeri* from the Malay Peninsula—is much larger than the South Indian *chlorigaster*. The lower portion of the lores and a line passing from the lores under the ear-coverts is pale yellowish green. In none of the—apparently adult—males is there a red malar stripe, which is so conspicuous in *G. c. chlorigaster*, but in three of them are some red spots to indicate it; neither of them has the crown entirely red or blackish with red tips, but red with large green patches; it is impossible to say if the crown would ever become quite red, but these males appear to be adult. Bill larger; buff spots on the sides of breast and abdomen smaller; otherwise like *G. c. chlorigaster*. Wing of males 130—137, of females 128—130 mm., in one example (? wrongly sexed) 137 mm. Culmen 26.5—27.5 mm.

Type of *Gecinus chlorigaster longipennis*: ♂ Mt. Wuchi 15. xi. 1906 (Katsumata coll.).

156. *Gecinus canus hainanus* Grant.

Gecinus hainanus Grant, *Ibis* 1899. p. 584; *P. Z. S.* 1900. p. 482.

2 ♀♀ Mt. Wuchi, 25. iii., 24. v. 1903 (No. 186).

1 ♂, 1 ♀ Mt. Wuchi, 15. xi. 1905 (No. 186).

4 ♀♀ Mt. Wuchi, November 1906 (No. B. 186).

1 ♂, 2 ♀♀ Cheteriang, 5. 10. i. 1904 (No. 186).

I quite agree with the views hinted at by Mr. La Touche in *Ibis*, 1907, pp. 2. 3—viz. that *G. guerini*, *tancolo*, and others are forms of *G. canus*, with which they apparently “intergrade” in some places.

Mr. Ogilvie-Grant erroneously compared his new “species,” *G. hainanus*, with *G. guerini*. It is certainly very different from *Gecinus canus guerini* of Chinkiang, etc., but it is not easy to separate it from *Gecinus canus tancolo* from Formosa and Southern China, up to Fokien. In fact, it only differs from the latter in being slightly smaller—the bill generally less powerful, the wing shorter.

The wings of 3 ♂♂ from Hainan measure 132, 135, and 136 mm., those of the females from 130 to 136, and in one example 138 mm., while I measure on Chinese and Formosan birds as follows:

♂♂ Yangtsekiang: 148, 148 mm.

♂ Kiukiang: 145 mm.

♂ Foochow: 143 mm.

♂ Formosa: 138 mm.

♀♀ Formosa: 137, 137 mm.

It will thus be seen that “*Gecinus hainanus*” hardly differs from typical *tancolo* (described from Formosa). I may add that there are no differences in colour, *tancolo* being as dark and as green as *hainanus*.

157. *Iynx torquilla* L.

Iynx Torquilla Linnaeus, *Syst. Nat.* ed. x. p. 112 (1758—"Habitat in Europa").

1 ♂ Lindon, 11. iii. 1903 (No. 184).

1 ♀ Wupa Shi, 1. iv. 1904 (No. 184).

[1 ♂ Nanchan Island, 5. i. 1907 (No. 3).]

This species appears not to have been noticed on Hainan before. It is doubtless only a bird of passage or winter visitor on Hainan.

158. *Caprimulgus macrurus ambiguus* Hart.

Caprimulgus macrurus ambiguus Hartert, *Ibis* 1896. p. 373 (Malay Peninsula, Burma, Assam and Eastern Himalayas).

♂ ♀ Cheteriang, 8. 10. i. 1904 (No. 293).

♂ Mt. Wuchi, 9. iv. 1903 (No. 293).

These specimens belong distinctly to the intermediate form which I named *ambiguus*.

159. *Caprimulgus indicus jota* Temm. & Schleg.

Caprimulgus jota Grant, *P. Z. S.* 1900. p. 486.

Whitehead obtained two specimens on the Five-Finger Mountains. See Mr. Ogilvie-Grant's remarks (*l.c.*).

160. *Apus subfurcatus* (Blyth).

Cypselus subfurcatus Grant, *P. Z. S.* 1900. p. 486.

Recorded by Swinhoe and Hartlaub only.

161. *Apus pacificus* (Lath.).

Cypselus pacificus Grant, *P. Z. S.* 1900. p. 486.

Only recorded by Swinhoe.

162. *Tachornis infumatus* (Sel.).

Cypselus tinus Swinhoe, *Ibis* 1870. p. 90 (Hainan).

Tachornis infumata Grant, *P. Z. S.* 1900. p. 486.

Swinhoe obtained several specimens on Hainan, and the Tring Museum possesses one of his types. Neither Whitehead nor Katsumata collected this Swift, which is regrettable, as it is by no means certain that it is quite identical with North Indian *infumatus*. If it is, as it might turn out to be, a darker race, its name would have to be *T. infumatus tinus*.

163. *Serilophus lunatus polionotus* Rothschild.

Serilophus lunatus polionotus Rothschild, *Bull. B. O. Club* xiv. p. 7 (1903—Hainan); Hartert, *Genera Avium* i. p. 5.

11 ♂♂, 3 ♀♀ Mt. Wuchi, March 1903 (No. 179).

This is one of the most beautiful discoveries of Mr. Katsumata. *S. l. polionotus* agrees with *S. l. lunatus* (Gould) and *S. l. rothschildi* Hart. & Butl. in the shape of the primaries, which are sharply pointed at the tips. It differs in the colour of the sides of the face, which are brownish grey, while the inner webs of the inner secondaries are slaty grey with pale cinnamon tips.

164. *Pitta nipalensis douglasi* Grant.

Pitta douglasi Grant, Abstract *Proc. Zool. Soc.* No. 81, p. 18 (March 1910—Hainan).

11 ♂♀ Mt. Wnehi, March and April 1903, November 1906 (Nos. 192, B 192).

7 ♂♀ Cheteriang, January 1904 (No. 192).

We received the first specimens of this interesting *Pitta* as long ago as 1904, and saw naturally at a glance that they differed from *P. nipalensis nipalensis*, but it was my wish to compare them with the type of *P. annamensis* Oustalet in the Paris Museum, in order to give a good comparative description of the Hainan form, rather than give a diagnosis which only half served its purpose, which is to differentiate a given form from all its allies.

The series of this interesting *Pitta* shows much individual variation. What must be the fully adult male looks as follows: Lores, forehead, ear-coverts and throat pale rosy, the chin with some white, because the colour of the bases, which is white on the chin, blackish otherwise, shows through. Wide superciliary stripe bright cinnamon rufous; above the ear-coverts a few black feathers, forming a hidden blackish line. Rest of upper surface dull green, rump blue, upper wing-coverts rusty green. Quills dark brown, inner webs of primaries white at base, outer webs dull greenish buff, green on both webs of the inner secondaries; underside of quills brownish ash-colour. Tail dull green. Underside from the throat backwards yellowish brown, darker on the foreneck, gradually paler on the abdomen and under tail-coverts, centre of belly more or less whitish, sometimes with a faint rosy tinge; foreneck and chest washed with pink. "Iris seal brown; bill brown; feet drab-grey" (Katsumata). Wing 115—120 mm.

What, in my opinion, must be the females, have no rosy colour on the lores, ear-coverts and throat, these parts being whitish grey-brown, whitest on the chin, where the bases of the feathers are white, not black. The crown and hindneck are dull green or rusty brown, or brown with a greenish tinge. The blue on the rump is not so pure and generally more restricted, the back duller and more brownish green. Under-surface a little paler and without any pink wash on the foreneck and chest. Wings 114—118 mm.

I do not think there can be any doubt that these are the adult females, although some of the adult males are also marked "♀". I mention this, because Katsumata's "sexing" is, as a rule, very reliable, indeed more so than that of many well-known European collectors.

There can be little doubt that these birds are different from *Pitta soror*, but they must be closely allied to *P. annamensis* Oust. This latter form was described from a single individual, not fully adult, from Annam. A figure has been given in the *Nouvelles Archives du Muséum d'Histoire Naturelle*, 4. série, vol. v. 1903, Plate V. This looks uncommonly like the female of *Pitta douglasi* except that the back is purer green and the top of the head lilac grey, while the underside is the same as in the females of *P. douglasi*.

Unfortunately, however, the figure, like others published in the same periodical, is not well executed, and **does not agree with the description!** The top of the head is described as "rose-lilas" or "roseo-vinaceum," and the rump, which is light blue in the plate, is said to be of the same colour! Moreover, a vinous rose-colour is said to cover the throat and to merge gradually into the rufous colour of the breast: nothing of this is seen on the plate in question. Also the mantle is described as brown, tinged with greyish green, not grass-green!

I therefore, in view of these discrepancies, am at a loss to say confidently how *P. douglasi* differs from *P. annamensis*, but I trust that Mr. Ogilvie-Grant, who took upon himself the responsibility of naming the Hainan *Pitta*, will lose no opportunity to compare the Annam form with those from Hainan, of which we have such a fine series, and of which he received two examples.

165. *Hirundo rustica gutturalis* Scop.

Grant, *P. Z. S.* 1900. p. 481.

A large series from Hoihow and Kiungshan, March 1902 (No. 33).

166. *Cryptolopha albogularis fulvifacies* Swinh.

Grant, *P. Z. S.* 1900. p. 481 (*C. fulvifacies*).

Not represented in the collection.—One ♂ obtained by Whitehead.

167. *Tchitrea princeps princeps* (Temm.).

Terpsiphone princeps Grant, *P. Z. S.* 1900. p. 481 (Hoihow ; Five-Finger Mts.).

1 ♂, 2 ♀♀ No-Tai, September 1902 (No. 97).

3 ♀♀ Mt. Wuchi, October 1905 (No. 97).

1 ♂ jnv. Mt. Wuchi, 15. xi. 1906 (No. B. 97).

168. *Rhipidura albicollis* (Vieill.).

Grant, *P. Z. S.* 1900. p. 481.

8 ♂♀ Mt. Wuchi, March—April 1903 (No. 138).

2 ♀♀ Lei Muimon, December 1902, January 1903 (No. 138).

Formerly recorded by Styan.

I do not think the Hainan birds are separable from Indian and Bornean ones, and it seems to me that *atrata* Salvad. from Sumatra is also inseparable.

169. *Hypothymis azurea caeruleocephala* (Sykes).

H. azurea Grant, *P. Z. S.* 1900. p. 481. (Common, teste Swinhoe.)

Siphia Styani (sic!) Hartlaub, *Abh. Nat. Ver. Bremen* xvi. 2. p. 248 (1898—Hoihow and Nodouha. Descr. of young male. Type examined).

5 ♂♂, 1 ♀ Secha, April 1902 (No. 64).

2 ♂♂, 2 ♀♀ No-Tai, September 1902 (No. 64).

3 ♀♀ Lei Muimon, December 1902, January 1903 (No. 64).

7 ♂♀ Mt. Wuchi, November 1905 (No. 283).

The Hainan specimens seem to agree with the Indian form rather than with the Malayan and Philippine one. Their abdomen is rather whitish, the bill is very wide, the females pale above.

170. *Siphia pallidipes hainana* Grant.

Siphia hainana Grant, *P. Z. S.* 1900. p. 480 (Hainan).

8 ♂♂, 10 ♀♀ Mt. Wuchi, March, April, May 1903, November 1905 (Nos. 194, 229).

4 ♂♂, 6 ♀♀ Cheteriang, January 1904 (Nos. 194, 229).

2 ♂♂ Lei Muimon, December 1902, January 1903 (Nos. 194, 229).

♀ No-Tai, September 1902 (Nos. 194, 229).

S. pallidipes hainana is much more closely allied to *S. pallidipes pallidipes*

than one might gather from Mr. Grant's description. It is hardly "much" smaller, but only a little smaller: the wings of our ten fully adult males measure 68—72 mm. (= 2·7—2·84 in.) Mr. Grant, when giving the measurement of "*S. hainana*" wing 2·65, measured much-worn examples; he gives the wing of *S. pallidipes* as 2·9 in.; but it is sometimes only 2·8 in., so that *S. p. hainana* is only on an average smaller. The differences in colour are very slight—in fact, all I can appreciate is a **slightly** brighter and darker blue on the upper surface, and a slightly darker and more brownish tinge on the abdomen. The females differ more strikingly, and their differences are well stated by Mr. Grant. The wings of our females measure from 63 to 68 mm. Most of our specimens are in fine fresh plumage.

(*Siphia styani* is not a *Siphia* at all, but a *Hypothymis*. See No. 169.)

171. *Chaimarrornis fuliginosa fuliginosa* (Vig.).

Phoenicurus fuliginosa Vigors, *P. Z. S.* 1830-31. p. 35 (Himalaya).

Xanthopygia fuliginosa Grant, *P. Z. S.* 1900. p. 480.

Whitehead alone discovered this bird on Hainan, where it seems to breed on the mountains, as he obtained young birds. Our collectors did not procure specimens.

I do not think that this bird has much to do with other species of the so-called genus *Xanthopygia*. Generally it is now called *Rhyacornis fuliginosa*; but I cannot separate it from *Chaimarrornis*, Mr. Grant's *C. bicolor* from Luzon forming an intermediate link between *Chaimarrornis leucocephala* and "*Rhyacornis*" *fuliginosa*, though it resembles more the latter than the former, and should, if the genera are separated, in my opinion be united with *Rhyacornis*.

172. *Muscicapa cyanomelana* Temm.

Muscicapa cyanomelana Temminck, *Pl. Col.* 470 (1828—Japan).

Xanthopygia cyanomelana Grant, *P. Z. S.* 1900. p. 480 (Haosuy, West Hainan, and Nao-chu Island).

2 ♂♂, 1 ♀ Hoihow, March, April 1902 (No. 17).

♂ Utschi, March 1903 (No. 17).

♀ Mt. Wuchi, November 1905 (No. 273).

This bird is evidently a winter visitor only to Hainan.

173. *Muscicapa mugimaki* Temm.

Muscicapa mugimaki Temminck, *Pl. Col.* 577, 2 (1835—Japan); Hartert, *Vög. Pal. Fauna*, i. p. 492.

Poliomyias luteola Grant, *P. Z. S.* 1900. p. 480, et auctorum. *Errore!*

♀ Secha, 17. iv. 1902 (No. 15).

Swinhoe recorded this bird only from Nao-chu island. It is new to the island of Hainan, where it is only a migrant.

174. *Muscicapa narcissina narcissina* Temm.

Xanthopygia narcissina Grant, *P. Z. S.* 1900. p. 480.

3 ♂♂, 2 Secha, March, April 1902 (No. 46).

♂ Hoihow, March 1902 (No. 46).

Whitehead was the first discoverer of this species on Hainan. It is a winter visitor to the south of China and Hainan.

175. *Muscicapa parva albicilla* Pall.

Muscicapa albicilla Grant, *P. Z. S.* 1900. p. 480 (North, Central, and West Hainan).

10 ♂ ♀ Mt. Wuchi, October, November 1905 (No. 213).

2 ♀ ♀ Cheteriang, January 1904 (No. 169).

Wintering on Hainan.

176. *Muscicapa latirostris* Raffl.

Alseonax latirostris Grant, *P. Z. S.* 1900. p. 479 (North and S.W. Hainan).

♂ Namro, March 1903 (No. 169).

3 ♂ ♀ Lindon, March 1903 (No. 169).

3 ♂ ♂ Mt. Wuchi, April 1903, October 1905 (No. 169).

4 ♂ ♀ Cheteriang, January 1904 (No. 169).

Wintering only on Hainan.

177. *Muscicapa sibirica sibirica* Gm.

Hemichelidon sibirica Grant, *P. Z. S.* 1900. p. 479.

Recorded by Hartlaub from Hoilow.

178. *Muscicapa ferruginea* (Hodgs.).

Hemichelidon ferrugineus Grant, *P. Z. S.* 1900. p. 479.

Obtained by Swinhoe on the west coast of Hainan, March 29 and 30, 1868.

179. *Pericrocotus griseigularis* Gould.

Grant, *P. Z. S.* 1900. p. 479.

Mr. Grant mentions a single male obtained by Whitehead, which, he says, appears to belong to the typical form from Formosa. We did not receive specimens from Hainan.

180. *Pericrocotus speciosus fraterculus* Swinh.

Pericrocotus fraterculus Swinhoe, *Ibis* 1870, p. 244 (Hainan).

Grant, *P. Z. S.* 1900. p. 479.

Cf. Hartert, *Nov. Zool.* 1902. pp. 555, 556.

15 ♂ ♀ Mt. Secha, March, April 1902 (No. 42).

181. *Graucalus macei larvivorus* subsp. nov.

Graucalus macei Grant, *P. Z. S.* 1900. p. 478 (S.W. Hainan).

Graucalus rex-pineti Swinhoe, *Ibis*, 1870. p. 242 (Central Hainan).

♂ ♀ No-Tai, September 1902 (No. 51).

2 ♂ ♂, 3 ♀ ♀ Secha, April 1902 (No. 51).

3 ♂ ♂ Lei Muimon, January 1903, December 1902 (No. 51).

4 ♂ ♂, 1 ♀ Mt. Wuchi, March and April 1903 (No. 51).

Hainan examples are closely allied to *G. macei rex-pineti* from Formosa; but they have shorter wings and comparatively larger bills. The wings of our examples measure: ♂ 166—173 (174—180 in Formosan ♂). Type ♂ ad. Mt. Wuchi, 21. iii. 1903. The larger bill had already been noticed by Swinhoe (*l.c.*).

I recognise the following subspecies of *G. macei*:

A. *Graucalus macei macei* Less. : India.

(I have not sufficient material to discuss whether several forms might be separable in India; but I think that probably a South Indian and Ceylonese form is separable, which would have to be called *G. m. layardi*.)

B. *Graucalus macei dobsoni* Ball : Andaman Islands.

(Differs from *G. m. macei* in being much lighter throughout, and smaller. I find that the white tips to the rectrices are generally very little less extended than in *G. m. macei*, therefore Mr. Oates' key, *B. India*, i. p. 496, is not very useful. Dr. Sharpe places this "species" in another genus: *Artamides*! A fine example of the unprofitable and unscientific genus-splitting rage as carried on by some of our friends, but worst of all by Dr. Bianchi, who uses the Darwinian theory as an excuse for his proceedings!)

C. *Graucalus macei rex-pineti* Swinh. : Formosa (and apparently parts of Southern China).

Differs chiefly in having a black throat, and altogether more black around the face.

Sharpe and Oates separated this form on account of its having buff under wing-coverts and axillaries; but this is a mistake, as they are pure white, more or less barred with dark grey.

D. *Graucalus macei larvixorus* Hart. : Hainan. (See above.)182. *Campephaga lugubris saturata* (Swinh.).

Volocivora saturata Swinhoe, *Ibis* 1870. p. 242 (Hainan).

Campephaga saturata Grant, *P. Z. S.* 1900. p. 478 (throughout Hainan).

12 ♂♀ No-Tai, September 1902 (No. 112).

2 ♂♂, 1 ♀ Lei Mnimon, December 1902, January 1903 (No. 112).

Whitehead obtained it on the Five-Finger Mountains.

183. *Chloropsis hardwickii lazulina* (Swinh.).

Phylornis lazulina Swinhoe, *Ibis* 1870. p. 255.

Chloropsis lazulina Grant, *P. Z. S.* 1900. p. 478.

3 ♂♂, 5 ♀♀ Lei Mnimon, December 1902, January 1903 (No. 96).

4 ♂♂, 1 ♀ No-Tai, September 1902 (No. 96).

♂ Mt. Wuchi, April 1903 (No. 96).

The male differs from that of *C. h. hardwickii* in having the top of the head greyish or bluish green instead of yellowish green; the throat is much more blue, not so blackish, and the blue on the shoulder is deep violet purple instead of cobalt blue. The female differs in having the head greyish green, especially on the sides, instead of green, and in having no orange colour on the abdomen, this being uniform green, including the under tail-coverts.

184. *Criniger pallidus* Swinh.

Criniger pallidus Swinhoe, *Ibis* 1870. p. 252; Grant, *P. Z. S.* 1900. p. 478.

Pinarocichla schmackeri Styan, *Bull. B. O. Club* i. p. vi. (1892—Hainan).

A large series from No-Tai, September 1902 (No. 94).

Mr. Whitehead obtained this bird on the Five-Finger Mountains.

185. *Hypsipetos perniger* Swinh.

Grant, *P. Z. S.* 1900. p. 478.

A large series of males and females from Mt. Secha, March—April 1902 (No. 43).

This entirely black form must surely be the representative of *H. nigerimus* from Formosa, which, however, is probably only the representative of the Indian *psaroides* and *concolor*! I am therefore not yet employing trinomials for this bird, leaving that to be decided upon after a thorough investigation of the group—as in many other cases.

A number of nests were found between May 15 and 29, 1902. They stood at a height of from ten to twenty feet in bushes and trees, and contained four, sometimes only three, eggs. The latter are typical “Boulboul” eggs, *i.e.* creamy white or pale pink, more or less thickly covered with dark rufous brown or lighter brownish red patches and spots, and with underlying pale purplish grey markings. They measure from 25.5×20 , 25.5×18.6 and 26.6×18.5 to 28×20 and 28.2×19.5 mm.

(*Spizixus cinereicapillus* has been recorded by Hartlaub—*Abh. Nat. Ver. Bremen* xii. pp. 299, 308—but it is not very credible that this Formosan form has strayed to Hainan. One might expect the continental *S. semitorquatus* exceptionally to stray down to Hainan, rather than the Formosan form to lose its way so far westwards. Possibly there is an error about the label.)

186. *Hemixus castanonotus castanonotus* Swinh.

Hemixus castanonotus Swinhoe, *Ibis* 1870. p. 251 (Hainan).

Grant, *P. Z. S.* 1900. p. 477 (Central, S.W. Hainan, Five-Finger Mts.).

11 ♂♀ No-Tai, September 1902 (No. 108).

4 ♂♀ Lei Muimon, January 1903 (No. 108).

This form has so far only been found on Hainan. Sharpe's statement in the *Hand-list* (iii. p. 312) appears to be erroneous. The continental representative is *H. castanonotus canipennis* Seebohm (*P. Z. S.* 1890. p. 342. pl. xxvii. 1).

See Grant's note (*l.c.*).

187. *Pycnonotus sinensis hainanus* (Swinh.).

Irus hainanus Swinhoe, *Ibis* 1870. p. 253 (Hainan and Nan-chau Is.).

Pycnonotus hainanus Grant, *P. Z. S.* 1900. p. 477 (Five-Finger Mts.).

A large series from Kiungchau, February 1902 (No. 6).

This form is a subspecies of *P. sinensis sinensis*, from which it differs in having the top of the head entirely black without a white postocular stripe and nape.

I take this opportunity to describe the Formosan form of *P. sinensis*, which has hitherto been confounded with the typical *P. s. sinensis*. It differs from the latter in being much whiter underneath, the yellow lines being fainter and fewer, and the breast-band is darker and more pronounced. Moreover, the back is slightly more greyish, and the wings do not reach the length which they frequently show in *P. s. sinensis*. Wings 84—90, while in *P. s. sinensis* they are often over 90—viz. 93—94 mm. I name this hitherto overlooked form :

Pycnonotus sinensis formosae subsp. nov.

Type: ♂ ad. Taipih, Formosa, October 1896 (No. 31). Obtained by one of Mr. Alan Owston's Japanese collectors.

We have received nearly fifty specimens from Taipih and Tapposha, Formosa, but it is evidently not found on the higher mountains.

Of *P. sinensis hainanus* our collectors sent us eight clutches of eggs. The nests were found about ten to twenty feet above the ground in bushes and trees, and from the 22nd to the 28th of May they contained from two to four eggs. Four eggs is apparently the full clutch. They measure from 20×15 to 21×16.1 , 22.3×16 and 22×16.9 mm.

Mr. Ogilvie-Grant has recently received a specimen of *P. sinensis sinensis* from Hainan. Perhaps it has strayed there accidentally or escaped from captivity.

188. *Herpornis xantholeuca tyrannulus* Swinh.

Herpornis tyrannulus Swinhoe, *Ibis* 1870, p. 347, pl. x.; Grant, *P. Z. S.* 1900, p. 477.

9 ♂ ♀ No-Tai, September 1902 (No. 59).

2 ♂ ♀ Secha, April—May 1902 (No. 59).

There are three closely allied subspecies of this bird:

H. x. xantholeuca: E. Himalayas, N.E. Bengal, Burmese countries to Tenasserim and Malayan Peninsula.

H. x. brunescens: Borneo.

H. x. tyrannulus: Hainan and Formosa.

H. x. brunescens differs from *H. xantholeuca xantholeuca* in being much more brownish olive above, especially on the head. *H. x. tyrannulus* is very closely allied to *H. x. xantholeuca*, only differing in its being whiter underneath, especially the throat, and in having the ear-coverts of a clearer grey. There is no appreciable difference in size. Malaccan examples of *H. x. xantholeuca* have perhaps a slightly more brownish tinge on the ear-coverts. Above they agree entirely with Indian specimens.

Clutches of five eggs said to belong to this bird were found in nests on the ground from May 20 to 28, 1902. The eggs are of a glossless white. Measurements from 13.7×11.6 and 14.5×11.4 to 15.1×10.7 , 15.5×10.8 and 16.7×10.7 mm.

189. *Turdinulus roberti hainanus* subsp. nov.

3 ♂ ♂, ♀ Mt. Wuchi, March, April 1903 (No. 171).

"Iris walnut-brown; bill slate-black; legs and toes drab-grey" (Katsunmata).

Evidently a form of *T. roberti roberti* from Assam, Cachar and Manipur, from which it differs as follows:

The lower throat lacks the very conspicuous blackish triangular spots, the throat being white or with a few dark brown longitudinal marks, and the lower portion dull brown with whitish edges to the feathers. The back, wings and rump are of a brighter brown, the whitish shafts are more distinctly indicated; the feathers of the pileum have much more distinct blackish margins. The ear-coverts are of a duller colour, and the rufous line separating them from the throat is absent. Moreover, the bird is smaller: wing 51—52.5, culmen 14—15, tarsus 21—21.6 mm. (Wings of *T. r. roberti* 53—56; culmen in old males 16—17.5 mm.)

Type: ♂ Mt. Wuchi, 25. iv. 1903.

190. *Stachyris guttata swinhoi* Rothsch.

Stachyris guttata swinhoi Rothschild, *Bull. B. O. C.* xiv. p. 8 (October 1903, Hainan).

9 ♂ ♀ Mt. Wuchi, March, May 1903, November 1905 (No. 187).

5 ♂ ♂ Cheteriang, January 1904 (No. 187).

This subspecies differs from *St. guttata guttata* from Tenasserim by having the crown and back less rufous and distinctly tinged with olive; upper tail-coverts and tail darker chestnut; outer aspect of wings, especially the inner secondaries, deeper chestnut, less rufous; ear-coverts dark slate-colour with no rufous or olive tinge. It is also a smaller bird: wing, ♀ 64, ♂ 66—68 mm., bill 2—3 mm. shorter.

191. *Proparus brunnea argutus* subsp. nov.

12 ♂ ♀ Mt. Wuchi, March, April 1903 (No. 170).

2 ♂ ♂ Cheteriang, January 1904 (No. 170).

Differs from *P. b. superciliaris*, to which it is very closely allied, in having the lores and ear-coverts slightly lighter, and the beak averages somewhat slenderer; moreover, the under wing-coverts and inner lining of the quills are less greyish and more buff. The wings of our 11 males measure 58—61, those of our 3 females 55—57 mm.

Type: ♂ Mt. Wuchi, 25 iii. 1903, Katsumata coll.

The Formosan *P. brunnea brunnea* differs strikingly by its dark under-surface and somberer brown upperside, wings and tail.

Proparus genistieri, *mandellii*, *dubius*, and *intermedius* differ by the black and white double eyebrow, which is black and grey in the *brunnea* group. It is difficult to say at present whether *dubius*, *genistieri*, etc., are geographical representatives of the *brunnea* group or not.

192. *Proparus nipalensis rufescens* subsp. nov.

Alcippe morrisoniana Grant, *P. Z. S.* 1900. p. 477 (Five-Finger Mts. by Whitehead; interior of S.W. Hainan according to Styan and Hartlaub).

2 ♂ ♂ Lei Mnimon, December 1902, January 1903 (No. 103).

2 ♀ ♀ No-Tai, September 1902 (No. 103).

11 ♂ ♀ Mt. Wuchi, March, April 1903 (No. 103).

Differs at a glance from *P. n. morrisoniana* of Formosa by the more rufescent colour of the back, tail, and outer aspect of the wings; and the white ring round the eyes is not so well developed, and especially almost invisible above the eye, where it is quite distinct in *P. n. morrisoniana*. Wing in the males 58—61, in the females 57—60, once 61 (if correctly "sexed"), while in *P. n. morrisoniana* the wings frequently run up to 64 mm. On the other hand the bill is, if anything, larger in *P. n. rufescens*. The under wing-coverts are also, as a rule, more whitish in *P. n. rufescens*.

Type: No. 103a, ♂ ad. Mt. Wuchi, 28. iii. 1903 (Katsumata coll.).

I cannot accept the splitting of the genera *Proparus* (a name first given in 1841, not 1844), *Alcippe*, and *Schoeniparus*. The separation of these three supposed genera appears to me to be quite arbitrary, and adds to the difficulty of their study, instead of advancing our knowledge one iota.

I believe that I am right in looking upon *Proparus morrisoniana* and *rufescens* as subspecies of the *nipalensis* group, but the occurrence of *phayrei* and *nipalensis* in the mountain ranges south of the Brahmaputra is to be considered!

193. *Stachyridopsis ruficeps goodsoni* Rothschild.

Stachyridopsis ruficeps goodsoni Rothschild, *Bull. B. O. C.* xiv. p. 8 (October 1903, Hainan).

Stachyridopsis ruficeps Grant, *P. Z. S.* 1900. p. 476. (First time found on Hainan.)

13 ♂ ♀, Mt. Wuchi, March, April 1903 (No. 172).

1 ♂, Cheteriang, January 1904 (No. 172).

Differs from all known races of *S. ruficeps* by its brighter uniform chestnut-red crown, more greenish back, and brighter yellow throat. For other races of *ruficeps* see *Bull. B. O. C.* xiv. p. 8.

A male from N.W. Fokien and a male from Foochow agree best with Formosan birds, *S. r. praecognitus*, but they are more olive above and below, the head is not of such a deep chestnut, and the bill is smaller.

In the *Bull. B. O. C.* xiv. p. 8 Mr. Rothschild mentioned four subspecies of *St. ruficeps*: viz., *S. ruficeps ruficeps* from the Himalayas, *S. r. rufifrons* from Assam, Burma, etc., *S. r. praecognitus* from Formosa, and *S. r. goodsoni* from Hainan.

In the *Ibis*, 1907, p. 183, Messrs. Ogilvie, Grant, and La Tonche again reviewed these forms, adding "*S. sinensis*" from "China," without, unfortunately, explaining how it differs from *S. davidi* Oust., described from Szetschwan, which they ignored, and without stating the exact locality of their type.

In the *Ann. and Mag. N. H.*, ser. 8. ii, Sept. 1908, and *Journ. Bombay N. H. Soc.* xix. p. 116 (1909), Major Harington described another form under the name of *Stachyridopsis bhamoensis*, saying that it differs from *S. sinensis* by its much larger and more massive bill, by having faint black shaft-streaks to the forehead and not such a yellow throat. I have examined three of Major Harington's cotypes, and find that it appears to differ, as stated, but the examples being in very worn plumage, a comparison of fresh material is desirable.

194. *Pomatorhinus tickelli hainanus* Rothschild.

Pomatorhinus tickelli hainanus Rothschild, *Bull. B. O. C.* xiv. p. 9 (Oct. 1903).

4 ♂ ♀, No-Tai, September 1902 (No. 90).

4 ♂ ♀, Lei Muimon, December 1902—January 1903.

7 ♂ ♀, Mt. Wuchi, March 1903.

Differs from *P. tickelli tickelli* in its smaller size, less rufous and more olive-brown upper surface and flanks, grey thighs, shorter and more blackish bill. Wing 97—101, tail 95—97, bill from base 35—41, metatarsus 37—38 mm. Colour of bill dark mouse-grey, not pale brownish, as in *P. t. tickelli*.

No form of *P. tickelli* had previously been recorded from the island of Hainan.

195. *Pomatorhinus nigrostellatus* Swinh.

Pomatorhinus nigrostellatus Swinhoe, *Ibis* 1870. p. 250 (Hainan); Grant, *P. Z. S.* 1900. p. 476.

8 ♂ ♀, No-Tai, September 1902 (No. 109).

6 ♂ ♀, Lei Muimon, January 1903 (No. 109).

This form is restricted to Hainan. It is nearest allied to *P. stridulus*, and can only be a subspecies of the latter. I have not, however, used a trinomial name for it, as I am uncertain about these forms. Not only it is difficult to limit *P. ruficollis* and *styani*, but it would seem that even *stridulus* occurs in places from which *styani* is recorded. Although I am inclined to think that not only *styani* but also

nigrostellatus, *stridulus* and others are subspecies of *ruficollis*, I refrain at present from a definite conclusion (cf. Grant, *Ibis*, 1900. p. 590, Hartert, *Vög. Pal. Fauna*, i. pp. 639, 640).

196. *Dryonastes monachus* Swinh.

Dryonastes monachus Swinhoe, *Ibis* 1870, p. 248 (Hainan); Grant, *P. Z. S.* 1900. p. 476.

9 ♂ ♀, Secha, April, May 1902 (No. 63).

6 ♂ ♀, No-Tai, September 1902 (No. 63).

This form is restricted to Hainan, where it has been met in the interior, on the Five-Finger Mountains, and in the south-west.

Clutches of greenish blue eggs were found during the latter half of May.

197. *Dryonastes castanotis* Grant.

Dryonastes castanotis Grant, *Ibis* 1899. p. 584 (Hainan); *P. Z. S.* 1900. p. 475.

15 ♂ ♀, Mt. Wuchi, March, April, 1903 (No. 181).

A fine series of this species, which has a large chestnut patch on the cheeks like *D. ruficollis*, to which it is nearly allied, but differing at a glance by the absence of chestnut on the abdomen and under tail-coverts. It is also a much larger bird.

198. *Garrulax moniliger schmackeri* Hartl.

Garrulax schmackeri Hartlaub, *Abh. Nat. Ver. Brem.* xiv. p. 349 (1898—Hainan); Grant, *P. Z. S.* 1900. p. 475.

2 ♂ ♂ No-Tai, September 1902 (No. 106).

♀ Lei Muimou, January 1903 (No. 106).

10 ♂ ♀, Mt. Wuchi, March, April 1903 (No. 106).

This subspecies differs from *G. moniliger moniliger* in a similar manner as does *semitorquata* from *pectoralis*. The tail has buff tips instead of white, and the outer webs of the outer primaries are olive brown instead of hoary grey. The buff colour on the foreneck is less bright, and the rufous collar on the nape is generally darker.

199. *Garrulax pectoralis semitorquata* Grant.

Garrulax semitorquata Grant, *P. Z. S.* 1900. p. 475 (Hainan, Five-Finger Mts.).

A large series collected in March and April on Mt. Wuchi (No. 910).

The chief characters for distinguishing this form are the buff tips to the tail-feathers, and the brownish buff outer webs of the outer quills, the latter character being the same in *G. p. picticollis*, which, however, has a grey, instead of black patch on the sides of the neck. The breast-band varies in an interesting manner in these forms: In *G. p. pectoralis* it is always united (complete); in *G. p. semitorquata* it appears to be always more or less distinctly divided (interrupted in the middle), though this is not well to be seen in some worn examples; and in *G. p. picticollis* the breast-band is complete in the males, interrupted in the females!

200. *Trochalopteron canorum owstoni* Rothschild.

Trochalopteron canorum owstoni Rothschild, *Bull. B. O. C.* xiv. p. 8 (October 1903).

Trochalopteron canorum Grant, *P. Z. S.* 1900. p. 475 (Interior of Hainan).

1 ♂ Utoshi, March 1903 (No. 53).

1 ♂ Cheteriang, December 1903 (No. 53).

2 ♂ ♂ Secha, April 1902 (No. 53).

6 ♂♂, 1 ♀ Mt. Wuchi, April—May 1903 (No. 53).

1 ♂, 3 ♀♀ S. Hainan, December 1903 (No. 53).

1 without exact locality; has one of the rectrices white.

Differs from *T. c. canorum* in having a much more olive upperside, and the ear-coverts darker. It is like *T. c. canorum* on the underside, but in the coloration of the upperside points towards *T. c. taiwanum* from Formosa.

201. *Enicurus sinensis* Gould.

Grant, *P. Z. S.* 1900. p. 474. (Recorded for the first time from Hainan, from a specimen collected by Whitehead).

5 ♂♀ Mt. Wuchi, March—May 1903 (No. 176).

10 ♂♀ Cheteriang, January 1904 (No. 176).

There are no differences between birds from Hainan and China.

202. *Kittacincla macrurus minor* Swinh.

Cittocincla macrura var. *minor* Swinhoe *Ibis* 1870, p. 341 (Hainan).

Cittocincla brericaula Grant, *Ibis* 1899, p. 584 (Hainan).

Cittocincla minor Grant, *P. Z. S.* 1900. p. 474 (Hainan).

Kittacincla macrurus minor Hartert, *Nov. Zool.* 1902, p. 572 (Hainan).

7 ♂♂, 2 ♀♀ No-Tai, September 1902 (No. 105).

2 ♂♂, 2 ♀♀ Lei Muimon, January 1903 (No. 105).

1 ♂ Namro, March 1903 (No. 105).

A fine series of the Hainan race of *K. macrurus*.

203. *Copsychus saularis* (saularis?) (L.).

Gracula saularis Linnaeus, *Syst. Nat.* ed. x, p. 109 (1758—"Habitat in Asia." Ex Edwards, Raius, Albin. As original locality should be accepted Bengal, ex Edwards).

Copsychus saularis Grant, *P. Z. S.* 1900. p. 474.

A series from Kinnegchan, February and March 1902 (No. 3).

The geographical variation of *C. saularis* is most interesting, but not very clearly defined, and therefore not quite easy to understand. Unfortunately Mr. Oates, when writing the *Birds of India*, vol. ii., did not make use of the splendid opportunity of working it out cleanly with the help of the fine series in the British Museum. This might be forgiven, because the geographical forms have not been closely studied in that work, except when they were very conspicuous, but in a special review of Indian Birds the supposed synonyms referring to Indian races should have been quoted. This, however, has been omitted in the case of *Copsychus saularis* and several others.

In India the under wing-coverts and axillaries are white, the females pale on the upper surface. In South India the females are said to be darker, as a rule, while in Ceylon they seem to be invariably darker.

In the Andamans the under wing-coverts have black centres, and the females have a darker back. Moreover these birds are rather smaller than Indian ones. The flanks (of the males at least) are washed with rusty brown.

In Southern Tenasserim and the Malay Peninsula the under wing-coverts and axillaries are dark in the middle, and the females are dark above. The Malaccan race seems to be the same as the Sumatran one—i.e. *musicus*.

In Java and Borneo we are confronted with a remarkable fact: many specimens are entirely black on the under-surface, or show only a few white feathers on the vent, while other specimens have the whole abdomen white, like Indian, Ceylonese,

Malaccan, and Sumatran specimens; others again are intermediate. The under wing-coverts and axillaries (of the males) are blacker; they are black with white borders, not white with black centres, as in Sumatra and Malacca. This difficulty is easily met by calling the black-bellied specimens *C. amoenus*, and denouncing the intermediate examples as hybrids between *C. amoenus* and *C. saularis musicus*. I do not think, however, that this solution is a scientific one, unless we have proofs that the supposed hybrids are the result of interbreeding, and that *C. saularis musicus* and *C. amoenus* are otherwise entirely different species. I consider that in Java one race lives, in which the abdomen varies from black to white, and this race must be called *amoenus*. If this view is not taken, a new name must be invented for the males with white abdomen, as their under wing-coverts and axillaries are much more black than in Sumatran *musicus*. From Bali I know hitherto only the typical *amoenus* with black abdomen, but only a few specimens from that island have reached Europe so far. Here is an interesting field for collecting by residents in Java. Another question is, if the form with white abdomen and the one with black underside inhabit different parts of Java, but I don't think this will be found to be the case, as in Borneo they appear to occur together.

The Chinese birds, and those from Hainan, have white under wing-coverts and axillaries, and appear to be inseparable from the true *saularis* from India. It is true that the bills of our Hainan specimens are sometimes very large—in fact many are inclined to be larger; but similarly large bills occur in India, and some Hainan specimens have quite small beaks. I cannot, therefore, attempt to separate the Hainan form, although some of the specimens have rather larger bills.

I can thus admit at present :

1. *Copsychus saularis saularis* (L.)—India to China and Hainan.
2. *C. saularis ceylonensis* Sel.—Ceylon, and, apparently, S. India.
3. *C. saularis andamanensis* Hume.—Andamans.
4. *C. saularis musicus* Raffl.—Sumatra and Malay Peninsula.
5. *C. saularis amoenus* Horsf.—Java, Borneo, Bali.

Besides these a form with black outer rectrices has been described from Borneo. I am inclined to think it may be only an aberration of *C. s. amoenus*. Between *C. saularis saularis* and *C. s. musicus* intermediates are found in Tenasserim and the Malay Peninsula; between *C. saularis saularis* and *C. s. ceylonensis* intermediates are said to occur in South India. About *C. s. amoenus* see above. *C. saularis mindanensis* from the Philippine Islands is always sharply separated by its entirely black tail, and *C. seychellarum* is a perfectly distinct species, and so are "*Gervaisia*" *albospectularis* and *pica* from Madagascar, though I do not see why they should be placed into a separate genus. In fact *Copsychus seychellarum* might just as well be separated generically. I am not acquainted with *C. inexpectatus* Richmond from Madagascar, which is of course a "*Gervaisia*."

204. *Pratincola torquata stejnegeri* Parrot.

Pratincola maura (non Pallas !) Grant, P. Z. S. 1900. p. 474.

Pratincola torquata stejnegeri Parrot, Verh. Orn. Ges. Bayern vii. p. 124 (1908—North Japan); Hartert, Vog. Pal. Fauna i. p. 708.

A large series of males and females from Kinngchau (February and March 1902), Hoikow and Lei Muimon (January 1903), and Utoshi (March 1903) (No. 11).

205. *Tarsiger cyaneus* (Pall.).

Apparently not found on Hainan before.

3 ♀♀ Hoihow and Lei Muimon, January—February 1903 (No. 136).

206. *Luscinia calliope* (Pall.).

Erithacus calliope Grant, *P. Z. S.* 1900. p. 473 (N. and S.W. Hainan).

4 ♂♂ Hoihow, March 1902, January—February 1903 (No. 39).

1 ♀ Mt. Wuchi, Central Hainan, 12. xi. 1906 (No. B 39).

207. *Luscinia sibilans* (Swinh.).

Luscinia sibilans Swinhoe, *P. Z. S.* 1863. p. 292 (near Canton).

Erithacus sibilans Grant, *P. Z. S.* 1900. p. 474 (North Hainan, teste Hartlaub).

1 ♂ Lindon, 12. iii. 1903 (No. 195).

1 (unsexed) S. Hainan, 26. xii. 1903 (No. 195).

208. *Phoenicurus aurea aurea* (Pall.).

Ruticilla aurea Grant, *P. Z. S.* 1900. p. 473 (Kiung-chu, February, teste Swinhoe).

♂ Taibinshi, March 1903 (No. 140).

♂ Lei Muimon, January 1903 (No. 140).

209. *Phoenicurus ochruros rufiventris* (Vieill.).

Ruticilla rufiventris Grant, *P. Z. S.* p. 473.

Phoenicurus ochruros rufiventris Hartert, *Vög. pal. Fauna* i. p. 723.

Has been obtained on Hainan, according to Hartlaub. The occurrence is certainly very unusual.

210. *Monticola solitarius philippensis* (P. L. S. Müll.).

Monticola solitarius (non Linnaeus!) Grant, *P. Z. S.* 1900. p. 473.

Monticola solitarius philippensis Hartert, *Vög. pal. Fauna* i. p. 675.

A large series from Hoihow and Kiungchau, January, February and March 1902 (No. 9).

All except one of these specimens are typical "*philippensis*" with chestnut-red abdomen. One ♂, however, shot on March 11, 1902, has the under-surface blue with only a few rufous spots on the abdomen and rufous under tail-coverts. It is impossible to say if this specimen is a hybrid between *M. s. pandoo* (cf. Hartert, *Vög. Pal. Fauna* i. p. 675) and *M. s. philippensis*, or a variety of either. As Hartlaub mentions both "*solitarius*" and "*cyaneus*," he clearly also received specimens with blue abdomen.

211. *Turdus citrinus aurimacula* subsp. nov.

Geocichla citrina (non *Turdus citrinus* Lath.) Grant, *P. Z. S.* 1900. p. 473.

(Observed only by Swinhoe; an immature male obtained by Whitehead.)

1 ♂ Hoihow, March 1903 (No. 40).

1 ♂ Lindon, March 1903 (No. 40).

1 ♀ Lei Muimon, January 1903 (No. 40).

1 ♂ Cheteriang, January 1906 (No. 40).

1 ♀ Mt. Wuchi, November 1905 (No. 40).

1 ♂ Mt. Wuchi, April 1906 (No. 40).

5 ♂ Mt. Wuchi, November 1906 (No. B 40).

The male of this very distinct new form differs from that of *Turdus citrinus* in having the head of a darker orange-chestnut, and the ear-coverts blackish brown divided in the centre by a pale orange band. The female differs from the female of *citrinus* in being much paler orange below, and the ear-coverts are marked as in the male, but still more blackish. The size is also much less: wings of males 109—113, instead of 116—125 mm.

Type: ♂ Hoihow, 13. iii. 1902.

212. *Turdus chrysolaus* Temm.

Grant, *P. Z. S.* 1900. p. 472.

Obtained by Swinhoe on the Chinlan River.

213. *Turdus cardis* Temm.

Grant, *P. Z. S.* 1900. p. 472.

4 ♂♂, 3 ♀♀ Hoihow, February—March 1902 (No. 10).

1 ♂, 2 ♀♀ Kinngchau, February—March 1902 (No. 10).

1 ♂ Namro, March 1903 (No. 10).

214. *Turdus philomelos* Brehm.

Turdus musicus Grant, *P. Z. S.* 1900. p. 472 et auctorum! (cf. Hartert, *Vög. pal. Fauna* i. p. 650).

Hartlaub recorded a male of the song-thrush from Hainan, but possibly in error.

215. *Turdus merula mandarinus* Bp.

Turdus mandarinus Grant, *P. Z. S.* 1900. p. 472.

4 ♂♀ Hoihow, November 1902, February 1903 (No. 129).

2 ♀♀ Lei Muimon, December 1902 (No. 129).

1 ♂, 2 ♀♀ Mt. Wuchi, March 1903 (No. 129).

1 ♀ Namro, March 1903 (No. 129).

2 ♂♂, 1 ♀ Lindon, March 1903 (No. 129).

2 ♂♂ Utoshi, March 1903.

216. *Graminicola striata* Styan.

Graminicola striata Styan, *Bull. B. O. C.* vol. i. p. vi (1892); Grant, *P. Z. S.* 1900. p. 472.

The collection contains no specimen of this species. Messrs. Styan and Hartlaub record it from Lei Muimon and Leimoi, and Whitehead obtained it on the Five-Finger Mountains. It is unknown to me.

217. *Cisticola cisticola tintinnabulans* (Swinh.).

Calamanthella tintinnabulans Swinhoe, *Journ. As. Soc., North China Branch* ii. 1859 (cf. *Ibis* 1860 pp. 51, 131).

Cisticola cisticola Grant, *P. Z. S.* 1900. p. 472.

Cisticola cisticola tintinnabulans Hartert, *Vög. Pal. Fauna* i. p. 613.

♂♀ Lei Muimon, January 1903 (No. 142).

2 ♂♂ Lindon, March 1903 (No. 142).

3 ♀ Taibinshi, March 1903 (No. 142).

218. *Sutoria sutoria* (Forst.).

Grant, *P. Z. S.* 1900. p. 471.

Recorded from North Hainan by Hartlaub. We did not receive any specimens.

219. *Prinia sonitans* Swinh.

Prinia sonitans Swinhoe, *Zoologist* 1858. p. 6229.

Burnesia sonitans Grant, *P. Z. S.* 1900. p. 471.

♂ Lindon, March 1903 (No. 167).

2 ♂♂ Namro, March 1903 (No. 167).

7 ♂♀ Mt. Wuchi, April, May 1903 (No. 167).

A young male from Mt. Wuchi (25. v. 1903) has the bill—which is entirely black in adult males and females—light brown, darker above, and the upper surface of a uniform brown, with a slight green tinge, the wings widely edged with rufescent.

Nests were found by the end of May among the grass, one to three feet from the ground, and containing two to five eggs. The eggs are pale greenish blue, sometimes almost whitish, and beautifully marked with deep purplish brown patches and spots, and sometimes hairlines of the same colour, and with underlying patches of pale rufous or greyish purple. They are exactly like the well-known eggs of the Indian *Prinia inornata*, and of the same dimensions, or partly a little smaller.

220. *Prinia inornata extensicauda* Swinh.

(An subspecies nova?)

Grant, *P. Z. S.* 1900. p. 471.

♀ Taibinshi, 16. iv. 1903 (No. 167).

This specimen agrees in coloration with *extensicauda*, having the ear-coverts fulvous, head brown, and a subterminal bar on some of the tail feathers. The bill is also reddish, not black as in *sonitans*. It has, however, a much shorter wing, of 44·5 mm.—i.e. about as short as in *sonitans*.

221. *Horeites cantans canturians* (Swinh.).

Arundinax canturians (sic!) Swinhoe, *Ibis* 1860. p. 52 (Amoy and Shanghai).

Cettia minuta Grant, *P. Z. S.* 1900. p. 471, No. 51.

Cettia canturians Grant, *l.c.* p. 471, No. 52.

Horeites cantans canturians Hartert, *Vög. Pal. Fauna*. p. 532.

10 ♂♂, 11 ♀♀ Hoihow, January, February, March 1903 (Nos. 22, 29).

5 ♂♂, 1 ♀ Kungchau, February and March 1902 (Nos. 22, 29).

It is now well known that the small specimens are the females, the large ones the males, and that *canturians* and *minutus* are therefore one and the same bird.

222. *Urosphena squamiceps* (Swinh.).

Tribura squamiceps Swinhoe, *P. Z. S.* 1863. p. 292 (Canton).

Urosphena squamiceps Hartert, *Vög. pal. Fauna* i. p. 539.

♀ Lindon, March 1903 (No. 200).

♂ Mt. Wuchi, November 1905 (No. 200).

Not previously recorded from Hainan.

223. *Locustella lanceolata* (Temm.).

Sylvia lanceolata Temminck, *Man. d'Orn.* iv. p. 614 (1840—locality erroneous !)

Locustella lanceolata Hartert, *Vög. pol. Fauna* i. p. 553.

1 ♂ Mt. Wuchi, 27. iii. 1903 (No. 199).

New to the list of Hainan birds.

224. *Phylloscopus fuscata fuscata* (Blyth).

Phyllopneuste fuscata Blyth, *Journ. As. Soc. Bengal*, xi. p. 113 (1842—Calcutta).

Luscinola fuscata Grant, *P. Z. S.* 1900. p. 471.

15 ♂♀ Hoihow, January and February 1903.—Migrant !

225. *Phylloscopus fuscata homeyeri* (Dyb.).

Phyllopneuste Homeyeri Dybowski, *Bull. Soc. Zool. France*, 1883. p. 358 (Kamtschatka).

One male, Hoihow, 27. i. 1903, is considerably darker on the upperside and less creamy, more white and brown below, than any of our large series of *P. fuscata*, and it agrees in this respect with four skins obtained by Mr. H. Stevens in North Lakhimpur, Upper Assam, in May and April 1907, although the latter are still more greyish on the chest than our example ; but the difference is trifling, and it must be remembered that our Hainan specimen is in its autumn plumage, being shot in January, while the latter have passed through their spring moult, being shot in April and May.

These birds form a well-marked race, and I have little doubt that they belong to *Phylloscopus fuscata homeyeri* which inhabits Kamchatka. The description of the latter (cf. Pleske, *Ornithogr. Rossica*, p. 409) agrees very well with our birds, except that the beaks of our birds are not weaker and narrower than those of typical *fuscata*. Hitherto the two type specimens of *homeyeri* are all that are known, but it is not astonishing that this bird should turn up in various places, for it must leave Kamchatka in winter and migrate southwards. An actual comparison of the types of *P. homeyeri* is desirable.—Migrant.

226. *Phylloscopus nitidus plumbeitarsus* Swinh.

Grant, *P. Z. S.* 1900. p. 470.

5 ♂♀ No-Tai, September 1902 (No. 89).

♂ Lei Maimon, December 1902 (No. 32).

9 ♂♀ Mt. Wuchi, October, November 1905 (No. 164).

Migrant.

227. *Phylloscopus superciliosa superciliosa* (Gün.).

Phylloscopus superciliosus Grant, *P. Z. S.* 1900. p. 470.

3 ♂♂ Hoihow, January, February, March 1902-3 (No. 32).

♀ No-Tai, September 1902 (No. 32).

5 ♂♂ Lei Maimon, December 1902, January 1903 (No. 32).

3 ♂♂ Lindon, March 1903 (No. 32).

2 ♂♂ Kinngchau, February 1902 (No. 32).

Migrant.

228. *Phylloscopus tenellipes* Swinh.

Phylloscopus tenellipes Swinhoe, *Ibis* ii. p. 53 (1860—Amoy); Hartert, *Vög. Pal. Fauna* i. p. 512.

♂ Mt. Wuchi, 15. xi. 1905 (No. 164).

This specimen is the first obtained on Hainan.

229. *Phylloscopus goodsoni* spec. nov.

"♂" South Hainan, December 22, 1903 (No. 164).

♂ Lei Muimon, 12. i. 1903 (No. 164).—Type.

This new form stands between *P. trochiloides* and *P. ricketti*, a species with bright yellow underside, which has erroneously been described as a *Cryptolopha*. Its under-surface, instead of being bright yellow as in *ricketti*, or whitish with a greyish tinge and pale yellow edges to the feathers, is sulphur-yellow, tinged with olive-greenish along the sides, and indistinctly striated with pale grey. Upperside as in *P. trochiloides*, while in *P. ricketti* the two lateral broad lines on the crown are of a deeper black. Wing of the bird from Lei Muimon 59 mm., that of the one from South Hainan only 54 mm., from which I conclude that the latter is wrongly "sexed."

I have named this bird after Mr. Arthur Goodson, who has taken much interest in the Hainan birds and greatly assisted me in this account, belated as it appears owing to pressure of other work.

I should not have hesitated to come to the conclusion, that *Phylloscopus trochiloides* and *ricketti*, connected as they are by this intermediate *goodsoni*, form various geographical races of one species, but, according to the statements of Mr. La Touche, both *Phylloscopus trochiloides*, and, as he calls it, "*Cryptolopha ricketti*," breed in the same districts of Fokien (cf. *Ibis*, 1899, pp. 209 and 425). Therefore—though I almost suspect there is a mistake about this—I cannot at present follow my wicked inclination to reduce these forms to subspecies, and I cannot say whether *goodsoni* should be a representative of *trochiloides* or of *ricketti*, as it stands right in the middle.

230. *Artamus fuscus* Vieill.

Grant, *P. Z. S.* 1900, p. 470.

14 ♂♀ Utosbi, March 1903 (No. 148).

1 Mt. Wuchi, April 1904 (No. 148).

All the specimens appear to be somewhat dark, especially on the throat and back, but as they are in more or less worn plumage, too much importance cannot be placed on the differences in colour. The beaks are also large, but some Indian specimens have bills as large. A separation, at the present moment, therefore seems too hazardous.

231. *Tephrodornis pelvica hainanus* Grant.

Tephrodornis pelvica Grant, *P. Z. S.* 1900, p. 470.

Tephrodornis hainanus Grant, *Abstract Proc. Zool. Soc.* No. 81, p. 18 (March 1910—Hainan).

2 ♂♂, 3 ♀♀ Secha, April and May 1902 (No. 57).

5 ♂♂, 2 ♀♀ No-Tai, September and October 1902 (No. 57).

Much darker than *T. pelvica pelvica* from India. The grey of the crown in the males is darker and more ashy; the back more rufous brown, without the ashy grey tinge of *T. p. pelvica*. Rectrices and wings of a warmer brown, the edges more rufous. Underside as in *T. p. pelvica*.

Whitehead obtained a very worn specimen in the Five-Finger Mountains on April 17. Our skins from Secha are equally worn, while the autumn specimens are in splendid fresh plumage, mostly still moulting.

Two nests were found on May 18 and 23, twenty feet above the ground, containing four and five eggs. The eggs look exactly like some eggs of the Grey Desert Shrike, *Lanius excubitor elegans*, found by Mr. Rothschild and myself in the Sahara. They are white, faintly tinged with an apology of green, with pale brown and very pale lilac-grey underlying spots. Measurements: 24×19 , 23.6×19.2 , 24.1×19 , 23.2×18.5 , and 24.2×18.5 , 25×19.5 , 24.9×19 , 24.4×18.5 , 24.8×18.8 mm.

232. *Lanius schach schach* L.

Lanius schach Grant, *P. Z. S.* 1900, p. 469.

2 ♂♂, 1 ♀ Hoihow, February, March, April 1902 (No. 2).

8 ♂♂, 1 ♂ Kinngchau, February, March 1902 (No. 2).

Nests containing four and five eggs were found on March 15 and during the second half of May. They stood from 10 to 20 ft. high in bushes and trees. The eggs vary, but all are pinky-white, or white with pale rufous markings and very pale lilac underlying spots. The measurements are fairly constant, and vary only from 23.5×18.2 to 24×19 mm.

233. *Lanius cristatus superciliosus* Lath.

Lanius superciliosus Grant, *P. Z. S.* 1900, p. 470.

8 ♂♀ Hoihow, February 1902 (No. 49).

This Shrike is only a winter visitor to Hainan.

234. *Lanius cristatus lucionensis* L.

Lanius lucionensis Grant, *P. Z. S.* 1900, p. 470.

Seen, but not procured by Swinhoe; obtained in North Hainan, according to Hartlaub.

235. *Lanius fuscatus* Less.

Grant, *P. Z. S.* 1900, p. 470.

♂ Lei Muimon, December 1902 (No. 193).

4 ♂♀ Utoshi, March 1903 (No. 144).

2 ♂♂ Taibinshi, March 1903 (No. 144).

♂ Mt. Wuchi, April 1903 (No. 144).

2 ♂♂, 1 ♀ No-Tai, November 1903 (No. 144).

These birds have the breast rather grey, only slightly tinged with rufous, but larger material from the continent is required to decide if this is constant. The specimen from Lei Muimon is quite aberrant; it is almost black above and underneath; has a white feather on the throat, the second primary of the right wing pure white, and the fourth primary mixed with white; while the left wing has the fourth primary pure white, with the exception of the outer web at the tip.

236. *Psittiparus gularis hainanus* Rothsch.

Psittiparus gularis hainanus Rothschild, *Bull. B. O. C.* xiv, p. 7 (Oct. 1903—Mt. Wuchi, Hainan).

1 ♂ No-Tai, September 1902 (No. 98).

1 ♂ Lei Muimon, January 1903 (No. 98).

6 ♂ ♀ Mt. Wuchi, March and April 1903 (No. 98).

7 ♂ ♀ Cheteriang, January 1904 (No. 98).

The differences of this subspecies, as given in the original description, do not hold good in this series. It is quite true that *P. g. hainanus* differs from *P. gularis gularis* from Sikkim and Bhutan by the darker colour of the upperside, and that it is distinguished from *P. gularis transfluvialis* of the mountains south of the Brahmaputra by its pure white under-surface; but it is very closely allied to *P. gularis fokiensis* from Fokien, and differs from the latter only in the more reddish colour of the upperside—the supposed size of the black gular patch being due to preparation; moreover it is smaller: the wings of six Fokien specimens measure 91—97 mm., those of fifteen Hainan examples 84—88 mm., and in one case as much as 91 mm., the wing of *hainanus* averaging nearly 1 cm. shorter.

237. *Parus sultaneus flavocristatus* Lafr.

♂ ♀ Cheteriang, January 1904 (No. 168).

2 ♂ ♂, 1 ♀ Mt. Wuchi, April 1903 (No. 168).

The Hainan specimens differ at a glance from *P. sultaneus sultaneus* by having smaller bills, and being generally somewhat smaller, while I cannot separate them from examples of South Tenasserim and the Malay Peninsula.

The species is new to Hainan.

238. *Parus major hainanus* Hart.

Parus major hainanus Hartert, Nov. Zool. xii. p. 499 (1905).

Parus cinereus Grant, P. Z. S. 1900, p. 469.

4 ♂ ♂, 1 ♀ Lei Maimon, December 1902, January 1903 (No. 58),

5 ♂ ♂ Secha, April 1902 (No. 58).

♂ No-Tai, September 1902 (No. 58).

4 ♂ ♂ Lindon, March 1903 (No. 58).

This subspecies differs from *Parus major cinereus* of the Sunda Islands in being smaller, while the bill is larger.

239. *Zosterops palpebrosa simplex* Swinh. (?)

Zosterops simplex Swinhoe, *Ibis* 1861. p. 331, in the text. ("It will not do to call the other bird *Z. sinensis*, as it is only a Southern Chinese form, being generally resident in the places where it is found. Let it stand, then, as *Z. simplex*.")

Zosterops palpebrosa Grant, P. Z. S. 1900, p. 469.

1 ♂, 2 ♀ ♀ Kiungehan, February, March 1902 (No. 30).

2 ♂ ♂, 1 ♀ Lindon, March 1903 (No. 30).

8 ♀ Secha, April, May 1902 (No. 30).

♂ No-Tai, September 1902 (No. 30).

♂ Hoihow, March 1902 (No. 30).

All Hainan specimens from Hainan and South China are easily distinguished from *Z. palpebrosa palpebrosa* of India by its less bright, more greenish instead of golden yellow upperside, and especially upper tail-coverts. This has been emphasised by Swinhoe (*Ibis*, 1870, p. 348), Styan (*Ibis*, 1887, p. 227), Sharpe (*Cat. B. Brit. Mus.* ix. p. 165), Oates and Finsch. Though there can be no doubt about the distinctness from *Z. palpebrosa palpebrosa*, I am in doubt about the possibility of separating the Hainan form from that of South China. On the whole the throat is brighter yellow and the bill larger in Hainan examples; but a series from Formosa shows much variation—some having the throat as pale as

Chinese, some as bright yellow as any Hainan examples; and also the bills are sometimes smaller, sometimes larger. Moreover, we have a skin collected by Swinhoe, according to the label, at Amoy in 1861, which has the bill as large and the throat as bright yellow as Hainan birds. Unless there is an error about the label, this is of importance. Last, but not least, our series from China is rather poor in freshly-moulted adult birds.

I can, therefore, not venture to separate the Hainan birds from the South Chinese *simplex*, though they may, perhaps, be separated later on.

Six clutches of eggs were found by the end of May 1902. The nests were standing 8 to 12 ft. high above the ground, and contained from three to five eggs. The eggs—like other eggs of *Zosterops*—are of a very pale greenish blue, without markings. They measure from 14.5×11.5 , 14.9×11.7 , 15×11.6 and 13.7×11.7 to 16.2×11.5 , 16.7×11.9 , 16×11.6 and 15.5×12.6 mm.

240. *Dicaeum minullum minullum* Swinh.

Dicaeum minullum Swinhoe, *Ibis* vi. p. 240, 1870 (Yu-lin-kan, S. Hainan).

3 ♂♂, 2 ♀♀ Lei Munim, January 1903 (No. 85).

4 ♀♀ Mt. Wuchi, March, April 1903 (No. 85).

1 without exact locality.

This form is very closely allied to *Dicaeum minullum olivaceum*; but it is of a brighter olive on the upperside, especially the head. The flanks are apparently more yellowish olive. The bill is decidedly larger. The buff loreal spot is more conspicuous, as in *D. minullum sollicitans* from Java. The ear-coverts are also tinged with buff. *D. minullum minullum*, *olivaceum*, and *sollicitans* are evidently closely allied subspecies, while *concolor* and *erythrorhynchum* form larger and somewhat different species.

It may be repeated that the bird called *D. inornatum* in the *Cat. B.* x. p. 45 must be called *D. minullum olivaceum*, as "*Myzanthus inornatus*" is a nomen nudum.

241. *Dicaeum cruentata coccinea* (Scop.).

Dicaeum cruentatum Grant, *P. Z. S.* 1900. p. 468.

♀ Kiangchan, February 1902 (No. 31).

2 ♂♂, 1 ♀ Secha, May 1902 (No. 31).

8 ♂♂, 3 ♀♀, 1 ♀ jnv. No-Tai, August, September 1902 (No. 31).

The various geographical forms of *Dicaeum cruentatum* have hitherto not been considered, though at least three forms can be distinguished without great difficulty.

1. *Dicaeum cruentata cruentata* (L.) from India.

Linnaeus' name is based on Edwards' "Little Black, White and Red Indian Creeper," which came from "Bengal." I find that in all the Indian birds the upper wing-coverts are "glossy steel-blue," as Sharpe said, and not in the least purplish. The bill is fine and slender.

2. *Dicaeum cruentata ignita* (Begbie).

Nectarinia ignita Begbie, *Malayan Peninsula*, p. 518 (1834—Malay Peninsula).

All specimens from the Malay Peninsula have the upper wing-coverts distinctly purplish blue. This is even expressed in the original description: "lesser wing-

coverts with a purplish gloss." The bill is sometimes wider at base, sometimes as in Indian specimens.

(It may be emphasised that Begbie's description appeared first in 1834, in his book *The Malayan Peninsula*, and not in the *Annals and Magazine of Nat. Hist.* 1846, as quoted in the *Catalogue of Birds*.)

3. *Dicaeum cruentata coccinea* (Scop).

Scopoli's name is based on Sonnerat's "Grimpercan à dos ronge de la Chine," from China. This form has the wing-coverts again steel-blue, without any purple tinge, rather more greenish than purplish; but it differs from the Indian form in having a larger bill and longer wings, and the females have the upperside more tinged with rusty orange.—South China and Hainan.

Possibly another subdivision can be made one day, as the Hainan examples appear to have a slightly shorter wing on an average; but some of them are fully as large as others from China (Kwantung, etc.).

Although there cannot be any doubt that these three forms are representing each other geographically, this is apparently not the case with *D. cruentatum ignita* and *D. sumatranum*, as both occur in East-Sumatra.

242. *Cinnyris rhizophorae* (Swinh.).

Arachnecythra rhizophorae Swinhoe, *Ann. and Mag. N. H.* (4) iv. p. 436 (Hainan).

Cinnyris rhizophorae Grant, *P. Z. S.* 1900. p. 468.

3 ♂♂, 1 ♀ Kiungchan, February 1902 (No. 14).

2 ♂♂, 1 ♀ Hoihow, March 1902 (No. 14).

5 ♂♂, 2 ♀♀ Secha, April—May 1902 (No. 14).

243. *Aethopyga christinae christinae* Swinh.

Aethopyga christinae Swinhoe, *Ann. and Mag. N. H.* (4) iv. p. 436 (1869) (Shuy-wei-sze, Hainan).
Grant, *P. Z. S.* 1900. p. 468.

6 ♂♂, 3 ♀♀ No-Tai, September 1902 (No. 86).

4 ♂♂ Lei Muimon, January 1903 (No. 86).

2 ♂♂ Namro, March 1903 (No. 86).

♂, ♀ Wupashi, April 1904 (No. 86).

Aethopyga latouchii Slater, from South China, is evidently a subspecies of *christinae*, differing by a greenish yellow, not black back, a somewhat different green of the crown, and slightly brighter reddish throat. The type, now in the Tring Museum, is from Chiong Po, province of Swatow.

244. *Anthus cervina* (Pall.).

Motacilla Cervina Pallas, *Zoogr. Rosso-Asiat.* i. p. 511 (1827) "O.F. in Siberia tantum maxime orientali, circa Corymba fl. itemque in Camtschatca et ins. vers. Americam sitis frequens est."

Anthus cervinus Grant, *P. Z. S.* 1900. p. 468.

♂ Hoihow, April 1902, No. 4.

9 ♂♀ Kiungchan, February—March 1902.

♂ Wupashi, April 1904.

(Winter visitor.)

245. *Anthus roseatus* Blyth.

Anthus rosaceus Grant, *P. Z. S.* 1900. p. 468.

Only quoted for Hainan on the authority of Hartlaub. *Anthus roseatus* is the proper name. Cf. Hartert, *Vög. pal. Fauna* i. p. 279.

246. *Anthus trivialis maculatus* Jerdon.

Anthus maculatus Jerdon, *B. India* iii. p. 873 (1861—ex Hodgson, nom. nud., India); Grant, *P. Z. S.* 1900. p. 467.

7 ♂ ♀ Lei Muimon, February 1902—January 1903 (No. 146).

2 ♂ ♂, 1 ♀ Lindon, March 1903 (No. 146).

♂ Cheteriang, January 1904 (No. 146).

(Migrant.)

247. *Anthus richardi richardi* Vieill.

Anthus richardi Vieillot, *Nouv. Dict. d'Hist. Nat.* xxvi. p. 491 (1818—France); Grant, *P. Z. S.* 1900. p. 467.

6 ♂ ♀ Hoihow, February—March 1902 (No. 12).

6 ♂ ♀ Kinngechan, February—March 1902 (No. 12).

4 ♂ Mt. Wuchi, October—November 1905 (No. 247).

248. *Dendronanthus indica* (Gm.).

Motacilla indica Gmelin, *Syst. Nat.* i. p. 962 (1788—ex Sonnerat and Latham: India).

Limnodromas indicus auctorum.

2 ♂ ♂, 1 ♀ S. Hainan, December 1903 (No. 188).

♂ ♀ Utoshi, March 1903 (No. 188).

♀ Wupashi, April 1904 (No. 188).

Apparently not before recorded from Hainan.

(Migrant from the north.)

249. *Motacilla flava thunbergi* Billberg.

(Cf. *Journ. f. Orn.* 1906. p. 351.)

Motacilla borealis Grant, *P. Z. S.* 1900. p. 467.

Swinhoe collected a specimen on West Island, South Hainan.

(Winter visitor.)

250. *Motacilla flava taiwanus* (Swinhoe).

Budytes taiwanus Swinhoe, *Proc. Zool. Soc.* 1863. p. 334 (Formosa).

Motacilla taiwana Grant, *P. Z. S.* 1900. p. 467.

4 ♂ ♂ Hoihow, December, February 1902, January, February 1903 (No. 7).

6 ♂ ♂ Kinngechan, February 1902 (No. 7).

(Winter visitor.)

251. *Motacilla boarula melanope* Pall.

Motacilla melanope Pallas, *Reise d. versch. Prov. Russ. Reichs* iii. p. 696 (1776—"In Davuria circa ripas glareosas"); Grant, *P. Z. S.* 1900. p. 467.

♀ Lei Muimon, November 1902 (No. 152).

2 ♂ ♂ Hoihow, February 1903 (No. 152).

1 without exact locality, January 1903 (No. 152).

(Winter visitor)

252. *Motacilla alba ocularis* Swinh.

Motacilla ocularis Swinhoe, *Ibis* 1860. p. 55 (Amoy); Grant, *P. Z. S.* 1900. p. 467.

8 ♂ ♀ Hoihow, April 1902, January—February 1903 (No. 8).

♂ Kiungchau, March 1902 (No. 8).

♂, 2 ♀ ♀ Lei Muimon, January 1903 (No. 8).

(Migrant.)

253. *Motacilla alba leucopsis* Gould.

Motacilla leucopsis Gould, *Proc. Zool. Soc. Lond.* 1837. p. 78 (India); Grant, *P. Z. S.* 1900. p. 467.

2 ♂ ♂, 1 ♀ Kiungchau, February—March 1902 (No. 147).

♂ No-Tai, September 1902 (No. 147).

♂ Lei Muimon, January 1903 (No. 147).

9 ♂ ♀ Hoihow, November, December 1902, January, February 1903 (No. 147).

(Migrant.)

254. *Alauda gulgula coelivox* Swinh.

Alauda coelivox Swinhoe, *Zoologist* 1859. p. 6724. *Ibis* 1860. p. 62, 132 (Amoy).

Alauda gulgula (non Franklin!) Grant, *P. Z. S.* 1900. p. 466.

10 ♂ ♀ Kiungchau, February 1902, No. 13.

♂ ♀ Hoihow, February, March 1902, No. 13.

All these specimens are the same as South Chinese ones, and their correct name is *Alauda gulgula coelivox*, as they are not the same as the Indian *A. g. gulgula*. From Formosa we have received a large series of forms with a thicker bill and darker coloration. These agree with the supposed types of both *sala* and *wattersi* in the British Museum. I think that Swinhoe meant to call Formosan examples by the name of *sala*, though I formerly referred the name to Hainan birds, which were looked upon as the same as the Formosan ones by Swinhoe. This appears to be correct, but I cannot quite understand it, as these closely allied forms must be geographical representatives.

255. *Emberiza spodocephala spodocephala* Pall.

Grant, *P. Z. S.* 1900. p. 466.

9 ♂ ♀ Hoihow, January—February 1903 (No. 34).

♀ Liudon, March 1903 (No. 34).

2 unsexed, Kiungchau, March 1903 (No. 34).

♂ Secha, March 1902 (No. 34).

256. *Emberiza aureola* Pall.

Grant, *P. Z. S.* 1900. p. 466.

3 ♂ ♂, 3 ♀ ♀ Liudon, March 1903 (No. 173).

1 ♂ juv. No-Tai, November 1903 (No. 224).

257. *Emberiza fucata fucata* Pall.

Grant, *P. Z. S.* 1900. p. 187.

4 ♂ ♂, 1 ♀ Hoihow, February—March 1902, February 1903 (No. 19).

1 ♂ Lei Muimon, January 1903 (No. 19).

5 ♂ ♂ Liudon, March 1903 (No. 19).

2 ♀ ♀ Wupashi, April 1904 (No. 19).

258. *Passer montana taivanensis* Hart.

Passer montanus Grant, *P. Z. S.* 1900, p. 466. (Common, teste Swinhoe.)

Passer montana taivanensis Hartert, *Vög. pal. Fauna* i. Heft ii, p. 161 (1904—Formosa).

14 ♂ ♀ Kiungchau, February—March 1902 (No. 1).

1 ♂, 2 ♂ ♂ juv. Hoihow, March 1902, August 1903 (No. 1).

The Hainan Tree Sparrow can, in my opinion, be united with the Formosan form, which is probably spread over Southern China. It cannot be mistaken for the Indian form, *P. montana malaccensis* Dubois, which has a smaller bill and lighter colour on the upper surface, while the Japanese subspecies (*Passer montana saturatus* Stejn.)—though very closely allied—has the bill not quite so powerful. It is true that, on the whole, Hainan examples average slightly less in their bills, but some Formosan specimens have bills quite like others from Hainan, while, on the other hand, some Hainan specimens have as powerful bills as Formosan ones.

259. *Sporaeginthus amandava* (L.).

Fringilla Amandava Linnaeus, *Syst. Nat.* ed. x. p. 180 (1758—ex Albin, pl. 77. "Habitat in India orientali").

3 ♂ ♂ Cheteriaug, January 1904 (No. 160).

These specimens are very brightly coloured. The species does not seem to have been recorded from Hainan before.

260. *Munia acuticauda* Hodgs. (? subspec.).

Uroloncha squamicollis Sharpe, *Cat. Birds Brit. Mus.* xiii. p. 359 (1890—partim!).

Uroloncha squamicollis Grant, *P. Z. S.* 1900, p. 466 (Hainan).

♀ Secha, April 11, 1902 (No. 116).

2 ♂ ♂ No-Tai, September 1902 (No. 116).

2 ♂ ♂ Lei Muimon, January 1903 (No. 116).

4 ♀ ♀ Utoshi, March 1903 (No. 116).

3 ♂ ♂, 3 ♀ ♀ Wupachi, April 1904 (No. 245).

I cannot separate the Hainan series from specimens of *M. acuticauda* of India and Malacca, though some are slightly smaller. On the other hand, Chinese specimens (Shanghai, Foochow, Whampoa) differ from Indian ones as described by Sharpe in the *Cat. B. Brit. Mus.* xiii. p. 359, by having larger bills; the Formosan birds agree with the Chinese ones (*M. acuticauda squamicollis* Sharpe), except that the wing is slightly shorter, and the throat mostly darker, but I do not feel justified in separating them without comparing a larger series from China.

261. *Munia topela* Swinh.

Munia topela Swinh., *Ibis* v. p. 380 (1863) (Amoy and Canton); Grant, *P. Z. S.* 1900, p. 465.

9 ♂ ♀ Hoihow, March 1902, February 1903 (No. 36).

8 ♂ ♀ Kiungchau, March 1902 (No. 36).

♀ No-Tai, September 1902 (No. 36).

♀ Lei Muimon, January 1903 (No. 36).

Hainan specimens do not differ from Chinese ones.

262. *Oriolus ardens nigellicauda* (Swinh.).

Psaropholus ardens var. *nigellicauda* Swinhoe, *Ibis* vi. p. 342 (1870—Hainan).

Oriolus nigellicaudus Grant, *P. Z. S.* 1900. p. 465.

2 ♂♂, 1 ♀ juv., 2 ♀♀ Lei Muimon, December 1902 (No. 134).

1 ♂, 5 ♀♀ Mt. Wuchi, March 1903, November 1905. (No. 134).

3 ♂♂, 1 ♂ juv., Cheteriang, January 1904 (No. 134).

The chief difference in the Hainan bird, which is a very close ally of *ardens*, is in the shorter wing. The bill is slightly slenderer. The tail of the male is generally darker, especially the two central feathers and outer webs of the outer rectrices. The female has also a darker and more brownish tail than *O. ardens ardens*.

263. *Oriolus indicus* Jerdon.

Oriolus indicus Jerdon, *Ill. Ind. Orn.*, text to plate xv. (1847—Malabar, Travancore, etc.); Oates, *B. India* i. p. 502; Hartert, *Vög. Pal. Fauna* i. p. 53.

Oriolus diffusus Sharpe, *Cat. B.* iii. p. 197 (nomen emend.); Grant, *P. Z. S.* 1900. p. 465.

15 ♂♀ Secha, April—May 1902 (No. 50).

As Sharpe stated, as long ago as 1877, "There are some slight differences between Indian and Chinese specimens, but not sufficient to found species upon." All I can see is that Indian examples are inclined to have slenderer bills, but I cannot even venture to found a subspecies upon this character.

A nest with two eggs was found at Secha on June 1, 1904, hanging twenty feet high on a tree. The two eggs are of a lovely pink (not white as in *O. oriolus*, after being blown and kept in the collection), covered with deep rufous-brown spots and underlying paler rufous-brown and mauve patches and clouds. They measure 30.5 × 20.2 and 30.5 × 20.7 mm.

Another nest with four eggs was found on May 18. The eggs are paler, the pink tinge being quite faint. Measurements 30 × 20.7 and 31 × 21 mm. (Two broken.)

264. *Dissemurus paradiseus johni* Hart.

Dissemurus paradiseus johni Hartert, *Nor. Zool.* vol. ix. p. 580 (1902—Hainan).

Dissemurus paradisiscus Grant, *P. Z. S.* 1900. p. 465 (errore).

♂ No-Tai, September 1902 (No. 102).

3 ♀♀ Mt. Wuchi, March, May 1903 (No. 102).

11 ♂♀ Cheteriang, January 1904 (No. 102).

This subspecies is of all those known to me nearest to the North Indian one (*D. paradisea grandis*), but differs in its very wide-feathered full crest, without any long frontal hairlike plumes, short feathers on the back of the neck, and much shorter wing. This is a most distinct form, a "good species" for our dear friends, the old-fashioned species-mongers.

265. *Dicrurus leucogenys* (Walden).

Buchanga leucogenys Grant, *P. Z. S.* 1900. p. 464.

6 ♂♀ Lei Muimon, December 1902—January 1903 (No. 120).

6 ♂♀ No-Tai, September 1902 (No. 120).

1 unsexed, Namro, March 1903 (No. 120).

♂ Secha, April 1902 (No. 120).

These specimens agree well with each other, but there are perhaps two races,

a lighter and a darker one—possibly from North (and South) China. Our Hainan examples would, in that case, belong to the darker race. Possibly this species is only a winter visitor on the island of Hainan.

266. *Dicrurus cineraceus innexa* (Swinh.).

Buchanga innexa Swinhoe, *Ibis*, 1870, p. 246 (Hainan).

Buchanga cineracea Grant, *P. Z. S.* 1900, p. 465.

8 ♂♀ Secha, April and May 1902 (No. 55).

4 ♂♀ Lei Muimon, December 1902, January 1903 (Nos. 120, 145).

1 ♂ South Hainan, December 1903 (No. 145).

1 ♂ Hoihow, November 1903 (No. 145).

2 ♀♀ Utoshi, March 1903 (No. 145).

1 ♂ Wupa-shi, 3. iv. 1904 (No. 55).

6 ♂♀ Lindon, March 1903, March 1904 (Nos. 55, 145).

The study of these Drongos is very difficult, but, as our fine series from Hainan is conspicuous by the large dimensions of the beaks, it might well be separated from *D. cineraceus cineraceus* from Java and Bali. The series is a very interesting one, being somewhat variable. Some examples, in fact more or less all those that are in abraded plumage, have whitish lores and a more or less striking indication of white ear-coverts, while others are quite dark, almost black, about these parts. Some of those in worn plumage look exactly as if they were hybrids between *D. cineraceus* and *D. leucogenys*, but they can always be distinguished from the latter by their much darker nuder wing-coverts, which are paler and have whitish edges in *D. leucogenys*. Such apparently intermediate examples were named "*Buchanga innexa*" by Swinhoe, while others with dark lores and ear-coverts were enumerated by him under the name of "*Buchanga mouhoti*."

The other supposed subspecies of *D. cineraceus* are more difficult to distinguish than *D. cineraceus innexa*. *D. cineraceus wallacei* from Lombok is so slightly darker, and averages—but is not always!—so little larger, that it is difficult to separate. The supposed *D. cineraceus palawanensis* (Whitehead) is also very slightly darker than *D. cineraceus cineraceus* of Java, but I fail to see how to distinguish it from the Lombok birds.

Specimens from Sumatra seem to agree with those from Java, while Tenasserim ones are apparently paler on the underside, but questionably separable.

The form justly named *nigrescens* by Oates (cf. *Fauna Brit. India, Birds* i. p. 315, 1889) I take to be the representative race, inhabiting Burma and Assam.

D. stigmatops Sharpe (*P. Z. S.* 1879, p. 247) is quite distinct. I have only seen it from Borneo.

What Swinhoe said about the notes of the various species of *Dicrurus* is interesting and important—viz. that those of the "Ashy Drongo" (*D. cineraceus*) are quite distinct from those of the "White-cheeked" (*D. leucogenys*) and of the "Black species" (*D. atra cathoecus*).

267. *Dicrurus atra cathoecus* Swinh.

Dicrurus cathoecus Swinhoe, *P. Z. S.* 1871, p. 377 (China, Hainan and Formosa).

Buchanga atra (non Hermann!) Grant, *P. Z. S.* 1900, p. 464.

8 ♂♀ Kungchau, February, March 1902 (Nos. 5, 26).

6 ♂♀ Hoihow, March, November, December 1902 (Nos. 5, 26).

2 ♂♂, 1 ♀ Lei Muimon, December 1902, January 1903 (No. 26).

1 ♀ No-Tai, September 1902 (No. 26).

1 ♂ Utoshi, March 1903 (No. 26).

The Hainan specimens differ at a glance from Indian ones (*B. atra atra*) in having larger and more powerful bills, and shorter—not longer!—wings. Swinhoe said they had a “rich bronze gloss.” This I can hardly see. It is true that they have a somewhat more greenish, less steel-black, gloss on the back and rump, but this difference is very slight. Another remarkable difference of *D. a. cathoecus* is in the tail, which never reaches the same length as in Indian specimens.

Two nests were found at Hoihow on the 2nd and 16th of May 1902. They stood ten feet from the ground. One contained four, the other two eggs. The eggs are white or of a pale pinkish cream-colour with, mostly round, rufous brown spots and patches, and a few pale greyish or mauve deeper-lying spots. They measure 26×18.5 , 25.8×19 , 25.7×18 , 25.3×19.5 , 25×19.5 and 24.5×19.5 mm.

Another clutch which is said to belong to *D. atra cathoecus* is smaller, and the round deep rufous brown spots on the eggs are smaller. They were taken at Secha, where no specimens of *D. atra cathoecus* were shot, but a series of *D. cineraceus innexa*. I am inclined to think that they might belong to the latter.

268. *Chaptalia aeneus* (Vieill.).

Dierurus aeneus Vieill., *N. Dict. d'Hist. Nat.*, Nouv. Ed. ix. p. 586 (ex Levaillant).
Chaptalia aenea Grant, *P. Z. S.* 1900. p. 464.

8 ♂ ♀ Mt. Wuchi, April, May 1903 (No. 143).

3 ♂ ♂ Lei Muimon, January 1903 (No. 143).

4 ♂ ♀ Cheteriang, January 1904 (No. 143).

269. *Sturnia sinensis* (Gm.).

Oriolus sinensis Gm., *Syst. Nat.* i. p. 394 (1788).
Sturnia sinensis Grant, *P. Z. S.* 1900. p. 463.

12 ♂ ♀ Hoihow, March 1902 (No. 38).

The white tip to the tail-feathers varies much in extent.

270. *Spodiopsar cineraceus* (Temm.).

Sturnus cineraceus Temm., *Pl. Col.* ii. 556 (1832—Japan).
Spodiopsar cineraceus Grant, *P. Z. S.* 1900. p. 463.

♂ Hoihow, 5. ii. 1903 (No. 149).

This species is only a winter visitor to Hainan.

271. *Spodiopsar sericeus* (Gm.).

Sturnus sericeus Gm., *Syst. Nat.* i. p. 805 (1788).
Spodiopsar sericeus Grant, *P. Z. S.* 1900. p. 463.

7 ♂ ♂, 6 ♀ ♀ Hoihow, February 1903 (No. 148).

272. *Acridotheres cristatella brevipennis* subsp. nov.

Acridotheres cristatellus Grant, *P. Z. S.* 1900. p. 463.

Kiungchan, February and March 1902 (No. 24).

Hoihow, March 1902 (No. 24).

Hainan specimens agree in every respect with *A. cristatella cristatella* from

China, except in size: they are smaller, the bill being, as a rule, smaller and slenderer, and the wing invariably shorter, generally from 10 to 18 mm.

Type: ♂ ad. Kinngchan, 14. ii. 1902.

A number of eggs were found in holes of trees from three to twenty feet above the ground. The clutches consisted of three and four eggs which are glossy greenish blue.

273. *Gracula intermedius hainanus* (Swinh.).

? *Eulabes hainanus* Swinhoe, *Ibis* 1870, p. 352 (Hainan).

Mainatus intermedius Grant, *P. Z. S.* 1900, p. 464.

1 ♀ Hoihow, April 1902 (No. 65).

12 ♂ ♀ Mt. Wuchi, November 1905 (No. 65).

A comparison of our beautiful series of *Gracula* from Hainan shows that they are very closely allied to *G. intermedius* from Tenasserim and Burma (Assam), only the bill is **generally**, but not always, smaller, the wings **mostly**, but not constantly, shorter, and as a rule the lappets on the occiput are somewhat narrower; moreover, the narrow bare line behind the eye ends more or less broadly, while it is pointed on the top end in *intermedius*. This last character, however, is a rather difficult one to go by, because it is much influenced by preparation: if the sides of the head are puffed out and filled with cotton-wool, the narrow bare space becomes broader, and it shrinks with the shrinking of the sides of the head. Also the width of the lappets is rather difficult to judge from, because the skins are not all equally treated. Therefore I am at present inclined to separate the Hainan form; but am not quite certain if it can be done satisfactorily.

Swinhoe separated both the South Chinese form and that from Hainan. The former he described because it was "smaller than *E. intermedius* of Tenasserim, had a smaller bill, and very narrow nuchal flesh-lappets," and because "the naked skin below the eye was about 0.7 in. broad and in shape nearly square." The Hainan bird, he says, had the subocular fleshy skin narrow, 0.25 in., and "lengthened downwards, not square." This is difficult to understand, and the description of *sinensis* agrees with our Hainan birds, while that of *hainanus* does not seem to fit so well. The probability is, that the Hainan and South China birds are the same, and form a barely separable form, closely allied to, but not quite identical with, *G. intermedius* from Tenasserim. The type of *hainanus* was a live bird in a cage which died and was thrown away, and it seems that the *sinensis* were all bought alive in shops by Swinhoe, who did not shoot them himself.

274. *Temnurus temnura nigra* (Styan). (? *Temnurus temnura*).

(Plate V.)

Crypsirhina nigra Styan, *Bull. B. O. C.* vol. i. p. vi. (1892—Hainan).

Temnurus schmacheri Styan, *Ibis* 1893, p. 426 (descript. nulla).

Temnurus oustaleti Hartlaub, *Abh. Nat. Ver. Bremen*, 1898, Bd. xvi. pt. 2. p. 249 (1899—Hainan).

Temnurus niger Grant, *P. Z. S.* 1900, p. 464.

5 ♂ ♂, 1 ♀ Mt. Wuchi, March, April, May 1903 (No. 190).

2 ♂ ♂, 1 ♀ Mt. Wuchi, November 1905 (No. 190).

6 ♂ ♀ Cheteriang, January 1904 (No. 190).

The Hainan race of *Temnurus* has, like its continental representative, been

unlucky in its names; the latter was first called *Glaucoptis temnura* by Temminck (*Pl. Col.* 357), then *Temnurus truncatus* by Lesson (*Traité d'Orn.* p. 341). The Hainan race was duly described as *Crypsirhina nigra* by Styan (*l.c.*), *Temnurus temnura* being unknown to him. In the *Ibis* for 1893, by an oversight, the bird was called *Temnurus schmackeri* instead of *T. nigra*; and then Hartlaub, although aware of the names *Crypsirhina nigra* and *Temnurus schmackeri*, most unnecessarily once more named the unfortunate bird *Temnurus oustaleti*! The unique specimen now in the Bremen Museum is the type of *Crypsirhina nigra*, *Temnurus schmackeri*, and *Temnurus oustaleti*!

The late Professor Oustalet has compared the specimen obtained by Schmacker's collector Tetsu with the type and unique specimen of *Temnurus temnura* (= *truncatus*) in the Paris Museum, and says that it is smaller, has a less robust beak, and no metallic gloss on the head, tail, and wings. From this we must conclude that *T. temnura* has a distinct metallic gloss on those parts, which is very faint in our Hainan birds, except just on the forehead. As Dr. Hartlaub said, the tail is not in the least "spatulate," as described by Styan, nor "cut square," but very deeply notched, the outer webs turned outwards and slightly upwards, the end of the shaft protruding in a point. The under-surface and mantle are dull slate-black or blackish slate-colour; the feathers of the forehead erect, those at the base of the culmen and above the nostrils pointed forward; the anterior part of the crown is slightly glossy. Tail and wings black, with a slight metallic gloss. The bill, legs, and toes are black, iris claret-red. Wings 125 to 133 mm. (females mostly, but not all, smaller, with wings about 125 to 128 mm.), longest rectrices 170 to 200, shortest lateral ones 60 to 70 mm.

It must be added that Oustalet doubts whether the type came from Cochin-China, and I am, notwithstanding the slight differences noticed by Oustalet, not at all sure that the type of *Temnurus temnura* was not a specimen from Hainan, and that only one form of *Temnurus* is known.

Temnurus is no doubt a close ally of *Crypsirhina*, and, like the latter, belongs to the *Corvidae*, and not to the *Sturnidae*, among which it has been placed—doubtless by an oversight and not intentionally—in Mr. Grant's list.

275. *Dendrocitta sinensis insulae* subsp. nov.

Dendrocitta sinensis Grant, *P. Z. S.* 1900. p. 463.

13 ♂ ♀ No-Tai, April, September, October 1902 (No. 84).

Differs from specimens from Fokien in being more ashy on the underside, especially on the breast, and in having a somewhat darker, more blackish throat, and besides they have shorter wings. The wings of the Hainan series range from 128 to 135, and in one ♂ to 138, while in *D. sinensis sinensis* the wings measure about 140 to 150 mm. The greater length of the wings in continental *sinensis* has already been distinctly shown by Sharpe, *Cat. B. Brit. Mus.* iii. p. 81, where he measures the wings of Hainan skins as 4.8 to 5.15, those of Ningpo examples 5.4 and 5.55 in. This is significant, though the wing-measurements given by Sharpe at that time were generally too short, as he did not stretch the wing, which is necessary in order to obtain exact and unvarying measurements. Type: ♂, 3. x. 1902.

The iris is claret-brown, bill black, legs and toes blackish slate, claws a little lighter.

All our specimens have the white speculum on the primaries distinctly developed, though in many of them it is very small, and perhaps generally smaller than in *D. sinensis sinensis*. Hartlaub mentions a Hainan specimen in which the alar speculum is only indicated.

Dendrocitta sinensis formosae Swinh. (*Ibis* 1863, p. 387) is another subspecies of this group with the lower abdomen whitish, the mantle more reddish and about the basal half of the middle rectrices grey, while *D. sinensis sinensis* and *D. sinensis insulæ* have the rectrices all black to the base, or only a small, though varying, amount of grey on the central pair, and, often, there is more grey in the tail in *D. s. insulæ* than in *D. s. sinensis*.

276. *Cissa katsumatae* Rothsch.

Cissa katsumatae Rothschild, *Bull. B. O. C.* xiv, p. 9 (Oct. 1903—Hainan).

12 ♂♀ Mt. Wuchi, November 1906 (No. B. 183).

1 ♀ Mt. Wuchi, 24. iii. 1903 (No. 183).—Type.

1 ♂♀ Chiteriang, 6, 8, i. 1904 (No. 183).

1 ♀ without exact locality, 18, iv. 1904 (No. 183).

1 ♂ Mt. Wuchi, 15, xi. 1905 (No. 183).

This beautiful *Cissa* was described by Mr. Rothschild from a single female. As stated in the original description it differs from *C. chinensis* in the absence of black subterminal cross-bars, followed by whitish tips, on the inner secondaries, which are reddish chestnut with wide greenish blue tips. It must be added that the bright chestnut-red colour disappears in time, and is replaced by greenish-brown, when the skins dry out more and more, and the fat or grease which the feathers contain to a certain degree when fresh, evaporates—at least this is my explanation of the fact that in all skins of *Cissa* the yellowish green colour seen in freshly killed examples is gradually replaced by a pale blue, and the chestnut or blood-red by a greenish brown. Exposure to light is not necessary to bring these changes about; I have found out that it also takes place in skins which are entirely shut off from the light, though more slowly. In the absence of black antepical bars on the inner secondaries *C. katsumatae* agrees with *C. jefferyi* from Borneo and *thalassina* from Java, but both the latter forms have wide whitish blue tips to the inner secondaries and differently marked rectrices. In *C. katsumatae* the central pair of rectrices are yellowish green (dull blue in older skins) while the lateral ones have wide (2 cm. and more) black bars and wide (2.5 to 3 cm.) pale bluish grey tips, palest at their ends. The size is much less than in *C. chinensis*. The tail is considerably shorter. Wings of males 140 to 145, of females 138 to 143 mm. The tails measure 15 to 16 cm. Iris dark cherry-red or “madder brown” (Ridgway, *Nominal. Col.* iv., Fig. 3), bill and feet orange rufous-red.

I am inclined to think that *C. katsumatae* should be treated as a subspecies of *C. chinensis*, but we must take into consideration the fact that two species of *Cissa*, namely *Cissa minor* and *Cissa jefferyi*, are both apparently together on the same mountain. Interesting notes on their occurrence are found in John Whitehead's fine book on Mount Kina Balu. In the *Hand-list*, v. p. 609, the habitat of *C. minor*, by an oversight, has only been given as “Sumatra.” A comparison of a series from both Sumatra and Borneo would be desirable. In any case, in view of the occurrence of two closely allied species together on Borneo, we cannot be too careful in regarding any *Cissa* as subspecies of another.

277. *Urocissa whiteheadi* Grant.

(Plate VI.)

Urocissa whiteheadi Grant, *Bull. B. O. C.*, vol. x, p. xviii, (1899) ; *P. Z. S.* 1900. p. 462.

11 ♂ ♀ Mt. Wuchi, March, April, May (No. 166).

1 ♂ Chiteriang, 10, i. 1904 (No. 166).

This remarkable species is unlike any of the other species of the genus. Whitehead also discovered a nest with young ones and another with eggs. Cf. *P. Z. S.* 1900. p. 463.

The plate represents one of the males collected by Katsumata, and two of the eggs obtained by Whitehead.

278. *Urocissa erythroryncha* (Gm.).

Grant, *P. Z. S.* 1900. p. 462.

An example of the red-billed *Urocissa* was obtained in North Hainan by Schmacker's collector (Hartlaub, *Abh. Nat. Ver. Bremen*, xii. pp. 299, 312).

279. *Pica pica sericea* Gould.

Pica sericea Gould, *Proc. Zool. Soc.*, London 1845, p. 2 (Amoy, China).

Pica pica, Grant, *P. Z. S.* 1900. p. 462.

Pica pica sericea Hartert, *Vög. Pal. Fauna* i. p. 22.

10 ♂ ♀ Hoihow, February 1902 (No. 78).

280. *Corvus torquatus* Less.

Corvus torquatus Grant, *P. Z. S.* 1900. p. 462.

10 ♂ ♀ Hoihow, February, March, April, November, December, 1902 (No. 67).

1 ♂ Lindon, 11. iii. 1903 (No. 67).

1 ♂ Utoshi, 21. iii. 1903 (No. 67).

281. *Corvus macrorhynchos levaillantii* Lesson.

Corvus levaillantii Lesson, *Traité d'Orn.* p. 328 (Bengal) ; Grant, *P. Z. S.* 1900. p. 462.

7 ♂ ♀ Hoihow, March 1902 (No. 66).

3 ♂ ♀ Hoihow, February 1903 (No. 66).

5 ♂ ♀ Lindon, March 1903 (No. 66).

SOME NEW MOTHS.

By DR. K. JORDAN.

FAMILY SATURNIIDÆ.

1. *Dirphia divisa* spec. nov.

♂. Antenna pale buff, the apical processes of each segment much shorter than the proximal processes. Head and thorax mummy-brown, flushed with eern and slightly variegated with buff. Abdomen black above, the apices of the segments tawny-ochraceous. Underside of body tawny-olive.

Wings, *upperside*: forewing elongate-triangular, nearly twice as long as broad, tawny-olive; a white line runs from base, where it is widened to form a small spot, to base of M^2 , extends at the hinder side of this vein two-fifths the way to the outer margin, where it curves apicad, running almost straight to the costal margin, which it reaches 4 mm. from apex; this line edged with brownish black on its costal side; another white line also emanates from the basal costal spot, but curves first backwards, then forwards, being here united with the first line, and again backwards, nearly having the shape of the letter S and ending at the hindmargin about 5 mm. from angle; this line is edged with brownish black on the hinder side; between the greyish brown outer marginal area and the white lines there is an irregular blackish band which projects distad between R^3 and M^2 ; a black discocellular spot, triangular, pointed costally, about 4 mm. long and 3 mm. wide.—Hindwing much longer at costal margin than at hindmargin, outer margin very oblique; basal area pinkish ochraceous, especially at hindmargin; rest of wing dark drab; a rounded discocellular patch black, its diameter about 5 mm.; a blackish submarginal line, posteriorly double, anteriorly less distinct and nearer to the margin, the marginal area paler than the disc, 4 mm. wide at M^2 , and about 2 mm. below apex.

Underside clay-colour, the long hairs on both wings pinkish ochraceous; in outer half of both wings two rather diffuse blackish bands, the proximal one curved inwards, on forewing approaching lower angle of cell, on hindwing crossing apex of cell, commencing at costal margin close to apex and ending at hindmargin at a short distance from angle, the ground at outer side of this band slightly paler than in centre of wing; the outer band somewhat irregular, projecting distad between R^3 and M^2 .

Length of forewing: 45 mm.; breadth, 23 mm.

Hab. Caldas, Minas Geraës.

1 ♂ in coll. J. Arp.

2. *Lobobunaea phaeax* spec. nov.

♀. Similar to *L. christyi* Sharpe, *Ann. Mag. N. H.* (7) iii. p. 371 (1899) (Niger). Branches of antenna shorter than both in *L. christyi* and *phaedusa* Drury. Upperside of wings grey, irrorated with numerous black specks; forewing with ocellus as large as in *christyi*; the discal line thin, crossing the third radial 6 mm. from the ocellus and 18 mm. from the distal margin.—Ocellus of hindwing as in the allied species, but its deep red outer ring much more sharply defined; discal line absent.

Underside: both wings speckled with black, grey from base to discal line, and brown from this line to the distal margin, the latter itself broadly blackish with the exception of the hinder angle of the fore- and the apical angle of the

hindwing; midway between the discal line and margin blackish patches. Ocellus of forewing pale sepia-colour, smaller than above, 11 mm. long, narrowly edged with black and red.—On the hindwing the ocellus the same colour as on the forewing, almost circular, though somewhat irregular; much smaller than in *christyi*, its diameter being 10 mm.

Hab. Gambaga, Gold Coast, June 11, 1902 (Dr. Bury).

1 ♀.

FAMILY ZYGAEINIDAE.

3. *Rhodopsona rutila* spec. nov.

♂. Similar to *R. rubiginosa* Leech. Body wood-brown, with very few red scales on the mesonotum.

Upperside: forewing red, paler in the centre; a narrow black border all round, this border especially narrow at the costal margin and somewhat widened at the apex.—Hindwing also red, with a broader black border at the costal and distal margins, the abdominal area from edge to SM¹ clayish sepia-colour.

Underside like upper, the black costal border of both wings very thin; abdominal border of hindwing buffish clay-colour; hindmargin of forewing also more or less of this colour.

Length of forewing: 16 mm.

Hab. Kagi District, Central Formosa.

3 ♂♂.

Morionia gen. nov.

♂. Frons narrower than the eye in frontal view. Tongue well developed. Antenna long, reaching beyond apex of cell of forewing, pectinated, the branches long and thin, rough-scaled, those of the apical segments shorter. Foretibia with long spur, which is closely applied to the tibia, reaching to its apex; hindtibia with two pairs of spurs.

Neuration. Forewing: four subcostals, second and third stalked together, the radial and median veins from cell, apex of the latter truncate, slightly angled between second and third radials, the second median from lower angle.—Hindwing: costal anastomosed with cell at three-fourths of the latter; subcostal and first radial separate, second cross-vein deeply angulate, first radial from above this angle, lower angle of cell more produced than upper, truncate, radial and median veins from cell, second median branching off beyond two-thirds.

In the bushy antenna and the contour of the wings the genus resembles *Rhodopsona*, but it belongs to the *Zygaeninae*, not to the *Chalcosiinae*.

4. *Morionia sciara* spec. nov.

♂. Body and forewing olivaceous black, with an exceedingly faint metallic tinge. Tongue pale yellow. Tip of antenna whitish.

Upperside: forewing elongate, the distal margin being only a little longer than half the hindmargin; below cell a white dot, 5 mm. from base, and some white specks at the discocellulars.—Hindwing drab, semitransparent; distal margin twice the length of the abdominal margin.

Underside uniformly drab, slightly darker at the apex of both wings.

Length of forewing: 18–19 mm.

Hab. Mt. Arizan, Kagi District, Central Formosa, June 1908.

2 ♂♂.

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NOVITATES ZOOLOGICAE.

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No. 3.

THE BIRDS OF THE RIO MADEIRA.

By C. E. HELLMAYR.

I. INTRODUCTION.

THE Rio Madeira, the mightiest affluent to the Amazons from the south, has been somewhat neglected by naturalists, and, until recently, our knowledge of its avifauna rested exclusively on the researches of John Natterer, who, in 1828, 1829, and 1830, had made extensive collections on this river. The results of his exertions are embodied in A. von Pelzeln's well-known work "*Zur Ornithologie Brasiliens. Resultate von Johann Natterer's Reisen in den Jahren 1817 bis 1835*," Vienna, 1867-70.* In 1906 Mr. W. Hoffmanns visited the district, collecting at **Humaytha** on the left bank, at **Paraíso** and **Borba** on the right side. This material, consisting of several hundred specimens, went to the Tring Museum, and an account of it has been given by me in *Novitates Zoologicae*, vol. xiv. 1907, pp. 343-412. In March 1907 Mr. Hoffmanns returned to his old hunting-grounds, working chiefly on the right bank of the river, and continued collecting until October 1908, when ill-health once more put an end to his activity. Though much hampered by frequent attacks of malaria, for which the Madeira has a very bad reputation, Mr. Hoffmanns was able to bring together a series of about 1300 bird skins, which, together with those secured on his first trip, makes a total of 2000 specimens. Besides these I have examined, thanks to the generous assistance of Dr. von Lorenz, the greater portion of the material obtained by Natterer on the Madeira and Guaporé Rivers.

The following article may, therefore, be looked upon as a complete *résumé* of our present knowledge of the ornithology of the Madeira region, which I have deemed best to restrict to that portion of the stream from Borba upwards to the junction of the Beni and Guaporé Rivers, the country below Borba being wholly unexplored. Four hundred and sixty-four species have been ascertained to occur within this area, although I feel sure that future explorations will considerably swell this list.

It remains to say a few words about the localities visited by Mr. Hoffmanns on his second expedition. The majority of the specimens were obtained at a place called **Calama**, situated on the right bank just below the junction of the Rio Giparana or Machados, which forms the boundary between the Brazilian states Amazonas and Mattogrosso. **Jamarysinho** is a hamlet on the left side of the Machados, near its mouth, and **São Isabel** a little village on the Rio Preto, a small affluent which flows into the Machados not far from its junction with the Madeira. **Allianca** is a settlement farther up the stream, a little above the mouth of the Rio Jamary. **Maruins** is situated on the left bank of the Machados, several journeys

* According to Von Pelzeln (*op. cit.* p. 392, note) A. R. Ferreira visited, between 1783 and 1793, the Madeira and Guaporé Rivers. His collections are said to have gone to Lisbon, but, as far as I am aware, have never been reported upon.

above the waterfalls, where, according to Mr. Hoffmanns, the aspect of the country changes. While the Madeira and the lower Machados flow through level country, there are many isolated hill-ranges and rocks on the upper course of the latter river. A thorough exploration of this district, from which Mr. Hoffmanns was prevented through bad health, would certainly yield a rich harvest to the naturalist. **Santa Maria do Marmellos** is a village on the left bank of the Madeira, and **Manicoré** (Las Onças), where, however, but a few skins were secured, is again on the right side, below the mouth of the Rio Manicoré.

The greater part of the material thus gained came into the possession of the Tring Museum. The lot from Marnius, together with a few skins from Marmellos and Allianca, as well as the duplicates from Calama, have been acquired by the Zoological Museum of Munich, while a small number of specimens went to Count Berlepsch's collection.

Mr. Hoffmanns, I regret to say, did not live to see the results of his labours appear before the scientific public. Shortly after his return to Crefeld he contracted a severe chill, which rapidly developed into pneumonia and ended fatally on January 18, 1909. His premature death is a serious loss to science, and especially to ornithology, which is indebted to him for many striking novelties, e.g. *Pipra exquisita*, *P. hoffmannsi*, *Anoplops hoffmannsi*, etc. Wilhelm Hoffmanns was born in Crefeld, Germany, in 1865, and from his earliest youth professed a great taste for natural history and collecting. On leaving school he entered the service of a commercial establishment in Crefeld, where he remained as clerk for several years, but he gave up this post and went to Peru, where he made large collections of insects and birds. In later years Hoffmanns was more particularly interested in ornithology, and the long list of papers which I contributed to this journal on his researches speaks well for his energy and zeal. His eminently truthful character and straightforwardness endeared him to all who had to do with him, and will make us even more strongly feel the loss of so faithful a friend.

II. ACCOUNT OF THE SPECIES.

1. *Turdus phaeopygus phaeopygus* Cab.

Turdus phaeopygus Cabanis in Schomburgk, *Reisen in Brit. Guiana*, iii. p. 666 (1848.—Brit. Guiana); Pelzeln, *Zur Ornith. Brasil*, ii. 1868. p. 93 (Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 344 (Humaytha).

Nos. 89, 322. ♂ ad., ♂ imm., Calama, 21. vi., 1. viii. 1907. "Iris brown, feet black or plumbeous, bill black."—Wing 105, 100; tail 88, 83; bill 16, 17 mm.

Agreeing well with our series from British Guiana and the Caura Valley, Eastern Venezuela.

2. *Turdus ignobilis debilis* Hellm.

Turdus ignobilis debilis Hellmayr, *Journ. f. Ornith.* 1902. p. 56 (1902.—Salto Theotônio, Rio Madeira—Nat. ever coll.).

T. Poiteauii (nee Bonaparte *) Pelzeln, *Zur Ornith. Bras.* ii. 1868. p. 94 (Salto Theotônio).

No. 679. ♂ ad., S. Isabel, Rio Preto, 11. x. 1907. "Iris brown, feet and bill black."—Wing 195½; tail 81; bill 18 mm.

* *Turdus Poiteauii* Lesson, *Traité d'Ornith.* p. 409 (nom. nud.); Bonaparte, *Notes Coll. Ornith. Delattre*, 1851. p. 28; Pucheran, *Arch. Mus. Paris*, vii. 1855. p. 377; idem, *Rev. Mag. Zool.* (2) x. 1858. p. 464.—I have examined the two original specimens, both from Cayenne (1822), in the Paris Museum. One is *T. p. phaeopygus* Cab., while the other, mentioned as *Pl. (T.) amaurochalinus* by Bonaparte and Pucheran, belongs to *T. albiventer* Spix.

This bird is practically identical with others from Eastern Ecuador and Northern Peru. Compared with a series of true *T. i. ignobilis* Scl. from Bogotá collections, it fully bears out the distinctive characters as given *l.c.* See also my remarks in *Nor. Zool.* xiii. 1906, p. 5.

T. i. debilis ranges from Eastern Ecuador through Northern and Central Peru to N.W. Brazil (Rio Purús and Rio Madeira). Occasionally it is also met with in Bogotá collections (cf. *Nor. Zool.* xiii. 1906, p. 5).

3. *Turdus amaurochalinus* Cab.

Turdus amaurochalinus Cabanis, *Mus. Heinean*, i. p. 5 (1850.—“Brasiliën”).

No. 668. ♀ ad., S. Isabel, Rio Preto, 10. x. 1907. “Iris brown, feet grey, bill blackish, base of lower mandible yellowish.”—Wing 110; tail 92; bill 20 mm.

This bird agrees perfectly with a series from S.E. Brazil and Corrientes, Argentine. It differs from the specimen of *T. i. debilis* obtained at S. Isabel by Mr. Hoffmanns by its longer wings and tail, blackish loreal spot, pure white chin (without any brown striations), much broader and more blackish brown stripes on the throat, much paler, buffy brownish instead of plain ashy breast and sides, clear ochraceous buff (not greyish brown) under wing-coverts, and by having well-defined, bright ochraceous edges to the inner webs of the remiges, altogether absent in *T. i. debilis*. The bill, too, is not uniform blackish, the basal half of the lower mandible being clear yellowish brown; there is also a spot of pale brown on the culmen near the tip.

This is, so far as I know, the first record of *T. amaurochalinus* from any Amazonian locality, though its occurrence on the Rio Madeira is not to be wondered at, for it was well known as an inhabitant of Northern Bolivia on the headwaters of that river. I expect, moreover, that *T. brunneus* Lawr.* will also prove to belong to *T. amaurochalinus*.

It is highly interesting to meet with *T. amaurochalinus* and *T. i. debilis* in the same locality. There can be no longer any doubt about their **specific** distinctness.

4. *Turdus hauxwelli* Lawr.

Turdus hauxwelli Lawrence, *Ann. Lye. Nat. Hist. New York*, ix. p. 265 (Aug. 1863.—Pebas, N.E. Peru); Seebohm, *Cat. Birds Brit. Mus.* v. 1881, p. 217 (Iquitos, Peru); Sharpe-Seebohm, *Monogr. Turd.* i. p. 251 (Eastern Peru); Hellmayr, *Nor. Zool.* xiv. 1907, p. 40 (Teffé); idem, *l.c.* p. 344 (Humaytha, Rio Madeira); Snethlage, *Journ. f. Ornith.* 1908, p. 7 (Cachoeira, Ponto Alegre, Rio Purús).

Merula hauxwelli Ihering, *Mus. Paulist.* vi. 1905, p. 430 (Rio Jurúá).

Turdus fumigatus (nec Liebt.) Schläter & Salvia, *P. Z. S. Lond.* 1866, p. 177 (Nauta, N. Peru); idem, *l.c.* 1873, p. 255 (Nauta, Chamicuro, Santa Cruz, Pebas).

Merula fumigata hauxwellii Allen, *Bull. Amer. Mus.* ii. 1889, p. 78 (Reyes, Beni R., North Bolivia).

No. 708. ♀ ad., S. Isabel, Rio Preto, 16. x. 1907. “Iris brown, feet dark grey, bill green.”—Wing 113; tail 92; bill 18½ mm.

No. 82. Adult (not sexed), Calama, 21. vi. 1907. “Iris brown, feet brownish grey, bill dark brown.”—Wing 110; tail 90; bill 19 mm.

No. 467. ♀ juv., Calama, 27. vii. 1907. “Iris brown, feet greyish brown, bill blackish.”—Wing 107; tail 84; bill 18½ mm.

Besides these I have examined the following specimens of *T. hauxwelli*: two topotypical ♂♂ ad. from Pebas, coll. Castelnau & Deville (one in the Paris, the other in the British Museum); ♀ ad., Iquitos (H. Whitely, jun., coll.), ♀ ad., Santa

* *Ibis*, 1874, p. 57, tab. i. (Upper Amazons).

Cruz, Ucayali (E. Bartlett coll.), both in the British Museum; ♂ ad., Teffé, Rio Solimões, ♂ ad., Humaytha, Rio Madeira, left bank (W. Hoffmanns coll.), in Tring Museum; ♀ ad., Rio Juruá, W. Brazil (coll. E. Garbe), belonging to the Musen Paulista; and three adults from the Rio Purús: ♂ ♀ Cachoeira, ♂ Bom Lugar, preserved in the Musen Goeldi at Pará.

This series fully corroborates what I said in *Nor. Zool.* xiv. 1907, p. 40. The upper parts are always lighter or darker "mummy-brown" (Ridgw. t. iii. fig. 10); foreneck, breast, and sides "wood-brown" (Ridgw. t. iii. fig. 19) or earthy brown with a slight rufescent tinge; the middle of the abdomen is largely white, the under tail-coverts white with dark brown bases. The axillaries and under wing-coverts are ochraceous buff, or wood-brown washed with pale ochraceous at the tips. Sometimes there is a narrow, ill-defined, buff edge along the inner web of the remiges, but in most specimens the latter is quite or nearly uniform greyish.

The young bird (No. 467), when compared with *T. fumigatus* in corresponding age, shows the distinctive characters even more strongly emphasized than the adults. In Nos. 708 and 82 some hairlike filaments are to be seen among the normal feathers of the nape. This particularity has also been noticed by Lichtenstein in the allied *T. fumigatus*.*

The female of *T. leucops* Tacz. bears a striking likeness to *T. hauxwelli*, but, on closer examination, may easily be distinguished by the deep orange under wing-coverts, more regular and darker, blackish brown stripes of the throat, and especially by the different wing-formula, the third, fourth, and fifth primaries being longest, and the second equal to the sixth. In *T. hauxwelli*, on the other hand, the fourth and fifth form the tip, the sixth is but from 2 to 3 mm. shorter, while the second falls between the seventh and eighth primaries.

It is a curious fact that Mr. Hoffmanns should have met with *T. hauxwelli* in the Rio Madeira district, while Natterer, eighty years ago, obtained its ally, *T. fumigatus*, at nearly the same places (*vide infra*).

T. hauxwelli has evidently a wide range in Amazonia. Unlike so many other Upper Amazonian types, it inhabits the left (Humaytha) as well as the right bank (S. Isabel, Calama) of the Rio Madeira. Farther to the west it was obtained by Garbe on the Rio Juruá, and by the expeditions of the Goeldi Museum on the Upper Purús. Hoffmanns sent a specimen from Teffé, Rio Solimões. In Peru several naturalists—E. Bartlett, Castelnau & Deville, Hauxwell, and Whitely—secured specimens on the banks of the Marañon, at Iquitos, Pebas, Nauta, Samiria, etc. The first-named of these travellers also took an example near Santa Cruz, on the Ucayali, and Dr. Allen records two specimens from Reyes, on the Rio Beni, Northern Bolivia.

[5. *Turdus fumigatus fumigatus* Licht.

Turdus fumigatus Lichtenstein, *Verz. Dobl. Berliner Mus.* p. 38 (1823.—"Brasilia"); Pelzel, *Zur Ornith. Bras.* ii. 1868, p. 94 (Engenho do Gama, S. Vicente, Borba).

1. ♂ ad., Borba, right bank of the Rio Madeira, June 21, 1830 (Natterer coll.).—Wing 112; tail 95; bill 20 mm.

2. ♀ ad., Borba, August 3, 1830 (Natterer coll.).—Wing 100; tail 90; bill 18 mm.

3. ♂ imm., Engenho do Gama, Mattogrosso, September 1829 (Natterer coll.).—Wing 110; tail 90; bill 19 mm.

* *Verz. Dobl. Berliner Mus.* 1823, p. 38, No. 438.

4. ♀ ad., Engenho do Gama, July 1829 (Natterer coll.).—Wing 110; tail 95 mm.

5. ♀ ad., S. Vicente, Guaporé, December 1829 (Natterer coll.).—Wing 110; tail 90; bill 19 mm.

These five specimens which belong to the Vienna Museum are quite distinct from Mr. Hoffmanns' skins of *T. hauwelli*. The upper parts are much more richly coloured, being deep cinnameous or ochreous brown, the axillaries and under tail-coverts bright orange, the inner webs of the quills broadly edged with ochraceous buff. The general colour of the under surface is also quite different, bright cinnameous brown passing into ochraceous in the middle of the abdomen; the throat is buff, striped with russet-brown (instead of whitish, with olive- or earthy brown streaks), and the under tail-coverts are buff or ochraceous, broadly edged with russet-brown. The three skins from the Guaporé (Nos. 3-5) differ slightly from the Borba couple by having the middle line of the abdomen white, and the under tail-coverts also mixed with whitish. In this respect they agree with an adult from Itaituba, Rio Tapajóz.]

[6. *Donacobius atricapillus* (Linn.).

Turdus atricapillus Linnaeus, *Syst. Nat.* xii. 1. p. 295 (1766.—ex Brisson: "Cap. boni spei"—errore! We substitute *Cayenne*).

Donacobius atricapillus Pelzelu, *l.c.* p. 49 (Borba).

Right bank: Borba (Natterer).

Widely distributed in Northern South America from Bolivia and Matto Grosso northward to Venezuela.]

7. *Heleodytes turdinus hypostictus* (Gould).

[*Opetiorhynchus turdinus* Wied, *Reise Brasil*, ii. p. 148 (1821.—Rio Doce, Espirito Santo; Rio Catolé, Bahia.—Cf. my revision of Spix's types, p. 626.]

Campylorhynchus hypostictus Gould, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 68 (1855.—Rio Ucayali, Eastern Peru).

Heleodytes turdinus hypostictus Hellmayr, *Nov. Zool.* xiv. p. 345 (Humaytha).

Campylorhynchus variegatus Pelzelu, *Zur Orn. Bras.* i. p. 49 (Borba).

No. 1067. ♂ vix ad., Manicoré (right bank), 24. viii. 1908. "Iris clear brown, feet dark grey, bill grey."—Wing 86; tail 80½; bill 21 mm.

No. 446. ♂ ad., Calama, 24. viii. 1907. "Iris yellowish red, feet grey, bill black, below grey."—Wing 92; tail 88; bill 22 mm.

Madeira specimens agree well with the Peruvian ones.

[8. *Leucolepis modulator modulator* (D'Orb.).

Thryothorus modulator D'Orbigny, *Voyage, Oiseaux*, p. 230 (Oct. 1838.—Yuracarès, Yungas, Bolivia).

Leucolepis modulator rufogularis (errore!—nec Des Murs) Hellmayr, *Nov. Zool.* xiv. 1907. p. 346 (Humaytha).

Left bank of the Madeira: Humaytha (Hoffmanns).

The adult male obtained at Humaytha in 1906 has been erroneously referred to *L. m. rufogularis*. Having once more examined the material in the Berlepsch, Paris, and Tring Museums, including the types of *T. modulator* D'Orb. and *Sarochalinus rufogularis* Des Murs,* I have come to the conclusion that if *modulator* from Bolivia and *rufogularis* from Eastern Peru and N.W. Brazil (Teffé, etc.) be

* Castelnau's *Voyage, Oiseaux*, p. 49. pl. xvii. fig. 1 (1856.—Sarayacu, Eastern Peru).

kept distinct, the Humaytha bird has to go with the former. In fact, on comparing three adults from Bolivia with Mr. Hoffmanns' specimen, I find that they agree in having the ferruginous colour below restricted to the throat and foreneck, and the abdomen of a rather pale rufescent brown; while in skins from Pern and Teffé the ferruginous is extended farther down the middle of the chest, and the abdomen is decidedly deeper rufous brown. Adults of both forms show the cheeks and ear-coverts uniform deep ferruginous.

Leucolepis modulator salvini (Sharpe),* from Eastern Ecuador (Rio Napo) and S.E. Colombia (Cuembi, Rio Putumayo),† differs from both by having the cheeks and ear-coverts deep olive-brown without any ferruginous, and by its darker wings. In the extent of the ferruginous colour on the lower parts it resembles *L. m. rufogularis*.]

9. *Leucolepis modulator griseolateralis* (Ridgw.).

Cyphorhinus griseolateralis Ridgway, *Proc. U.S. Nat. Mus.* x. 1887. p. 518 (1888.—Diamantina near Santarem, Rio Tapajóz).

No. 946. ♂ ad., Marnins, Rio Machados, 27. vi. 1908.—Wing 63; tail (moulting) 34; bill $17\frac{1}{2}$ mm.

Nos. 174, 348, 428. ♂♂ ad., ♂ imm., Calama, 6. vii., 7, 19. viii. 1907.—Wing 65—67; tail 37—39; bill $17\frac{1}{2}$ mm.

Nos. 175, 352, 427. ♀♀ ad. and imm., Calama, 6. vii., 8, 19. viii. 1907.—Wing 62—64; tail 34—36; bill $15\frac{1}{2}$ —17 mm.

No. 962. ♀ juv., Marnins, 30. vi. 1908.—Wing 62; tail 34; bill 17 mm.

"Iris brown, feet dark or blackish brown, bill black, below grey."

This series differs from *L. m. modulator* by the clearer brown, less rufescent upper parts, and earthy brown or ashy (instead of dark olive-brown) sides of the neck, breast, and abdomen. Moreover, the superciliary stripe, instead of being uniform deep ferruginous, is buffy white in its posterior portion, and the wings are shorter. Like *L. m. modulator*, the ferruginous colour is confined to the throat and foreneck; the cheeks and ear-coverts are ferruginous, with some slight brownish streaks near the upper border of the auricular patch.

The specimens tally well with Ridgway's description, except that in none of them is the "hindneck tinged with greyish," nor can the lower portion of the auriculars be termed "dull light greyish, very indistinctly striped with darker." These slight discrepancies may, however, disappear on actual comparison.

The series presents a considerable amount of variation, chiefly in the coloration of the lower parts. Nos. 946 and 348 have the breast and abdomen dull ashy, passing into dingy whitish grey in the middle of the chest, and very slightly tinged with pale brownish on the flanks. In the other specimens the belly is pale earthy brown, with the flanks more decidedly olive-brown, and the middle of the chest sometimes paling to dull buffy. The under tail-coverts are generally bright cinnamon-rufous, but in two skins (Nos. 348 and 427) scarcely more rufescent than the abdomen. The intensity of the ferruginous colour of the throat, forepart of the crown, etc., is rather variable; the brown of the back is sometimes shaded with olive, etc. The maxilla is black, the mandible yellowish.

The young bird (No. 962) differs very markedly from *modulator* juv. (ex

* *Cyphorhinus salvini* Sharpe, *Cat. Birds Brit. Mus.* vi. p. 292. pl. xviii. fig. 1 (1881.—Rio Napo, Eastern Ecuador).

† There are two adults from this locality, collected by G. Hopke, in Mus. II. v. Berlepsch.

Bolivia) by its much paler belly, the breast being dull rusty buff, the inner sides and flanks light rufescent olive-brown.

L. modulator griseolateralis replaces *L. m. modulator* on the right bank of the Rio Madeira, ranging eastward as far as Santarem, south bank of the Amazons.

10. *Thryothorus genibarbis genibarbis* Sw.

Thryothorus genibarbis Swainson, *Anim. in Menag.* p. 322 (1838.—"Brazil").

Thryothorus melanos (nee Vieillot) Pelzela, *Zur Orn. Bras.* i. p. 48 (part.: Borba).

No. 671. ♂ imm., S. Isabel, Rio Preto, 10. x. 1907.—Wing 63; tail 56; bill 18 mm.

No. 646. ♀ ad., S. Isabel, 8. x. 1907.—Wing 59; tail 56; bill 16½ mm.

No. 380. Juv., Calama, 11. viii. 1907.—Wing 59; tail 48; bill 15½ mm.

No. 717. ♀ pull., S. Isabel, 19. x. 1907.—Wing 59; tail 49; bill 14 mm.

"Iris red (671), reddish brown (646), brown (380, 717); feet plumbeous (adult), brownish black (juv.); bill black, below grey."

These birds agree, in size and coloration, with typical *T. genibarbis* from Bahia, except that the pileum and nape are distinctly rufescent brown, instead of sooty. An adult male from Borba (Natterer coll.), however, is not different on this score. The young bird, in nestling plumage, very closely resembles the same stage of *T. coraya* (Gm.).

T. g. genibarbis ranges from Bahia north to Pará, and westwards to the right bank of the Madeira (Borba, Calama, S. Isabel).

[11. *Thryothorus genibarbis juruanus* Ihering.

Cf. *Nov. Zool.* xiv. p. 345 (Humaytha).

Represents the foregoing on the left bank of the Madeira: Humaytha (Hoffmanns). It differs by its longer wings and rather paler under parts, yet its validity requires confirmation by a larger series.]

12. *Thryophilus albipectus albipectus* (Cab.).

Thryothorus albipectus Cabanis in Schomburgk, *Reisen in Brit. Guiana* iii. p. 673 (1848.—Cayenne).

Thryophilus taenioptera Ridgway, *Proc. U.S. Nat. Mus.* x. 1887. p. 518 (1888.—Diamantina near Santarem, Tapajóz).

Thryothorus leucotis (nee Lafresnaye) Pelzela, *l.c.* p. 47 (Salto do Girao, Barra do Rio Madeira).

"*Thryophilus albipectus* subsp." Hellmayr, *Nov. Zool.* xiv. p. 345 (Humaytha).

No. 685. ♂ ad., S. Isabel, Rio Preto, 12. x. 1907.—Wing 67; tail 48; bill 19 mm.

No. 460. ♂ ad., Calama, 26. viii. 1907.—Wing 64; tail 48 mm.

No. 872. ♀ ? juv., Marmellos, 27. xii. 1907.—Wing 61; tail 43; bill 16½ mm.

"Iris reddish brown (adult), greyish brown (872); feet and bill greyish black, lower mandible grey."

The specimens agree, in every detail, with a large series of *T. albipectus*, from Pará and Venezuela (Caura Valley), in the Munich Museum. Natterer's examples from Barra do Rio Madeira and Manáos, as well as two adult males from the Upper Purús (Bom Lugar, Monte Verde), are rather darker ochraceous below than the majority of our Caura and Guianan skins, but some of the latter match them exactly. The skins from Humaytha, S. Isabel, and Calama, on the other hand,

resemble average specimens of *T. albipectus*, in the paleness of the lower parts, the tinge of the back, etc. In view of this great individual variation I consider it impossible to separate the Amazonian race *T. taenioptera*.

T. a. albipectus is thus seen to inhabit Cayenne, Surinam, British Guiana, and Eastern Venezuela (Caura), and to range southwards to the main valley of the Amazon (from Pará to Manáos) and its southern tributaries (Tocantins, Tapajóz, Rio Madeira, and Purús).

On the Rio Jurná and in Eastern Peru, however, a small, darker form is met with. Cf. *Nov. Zool.* xiv, 1907, p. 3.

[13. *Odontorhynchus cinereus* Pelz.

Odontorhynchus cinereus Pelzeln, *Zur Orn. Bras.* i. p. 67 (1867.—Salto do Girao).

Right bank : Salto do Girao (Natterer).

Thanks to the kindness of my friend Dr. Lorenz, I have been enabled to examine the type belonging to the Vienna Museum. Though quite distinct generically, *Odontorhynchus* is perhaps nearest to *Thryophilus*, but may be readily distinguished by the strongly curved culmen with a very distinct sub-terminal notch. The style of coloration, too, is very different. The type, an immature female, measures : wing 52 ; tail $49\frac{1}{2}$; bill 12 mm.

The Paris Museum possesses a male obtained on the Rio Javarri in 1846, by Castelnau and Deville. It is larger (wing 59 mm., tail incomplete), with apparently a broader, stronger bill (which, however, is much damaged by the shot), the upper parts rather more of an olive-grey, the cross-bands of the tail much broader, the lower parts dull light grey (instead of white), etc. Until additional specimens come to hand it cannot be decided whether the Javarri bird is specifically identical with *O. cinereus* or not.]

14. *Troglodytes musculus clarus* Berl. & Hart.

[*Troglodytes musculus* Naumann, *Vög. Deutschl.* iii. p. 724, table (1823.—Bahia).]

Troglodytes musculus clarus Berlepsch & Hartert, *Nov. Zool.* ix. p. 8 (1902.—Bartica Grove, British Guiana).

No. 730. ♂ ad., Calama, 26. x. 1907. "Iris greyish brown, feet grey, bill black, below greyish red."—Wing 52 ; tail 38 ; bill 14 mm.

Agrees in coloration with our large series from Pará, Venezuela (Caura, Cumaná), Trinidad, etc. This is the first record from the Rio Madeira, and the southernmost locality of the species in Brazil.

Farther to the south, on the Rio Guaporé (Villa Bella de Mattogrosso), in Western Mattogrosso (Cuyabá, etc.), and Eastern Bolivia, it is replaced by *T. musculus rex* Berl. & Lev.*

15. *Oporornis agilis* (Wilson).

Sylvia agilis Wilson, *Amer. Ornith.* v. p. 64, pl. 39, fig. 4 (1812.—Connecticut ; Pennsylvania near Philadelphia).

No. 789. (♂) imm., Alliance, 16. xi. 1907. "Iris brown, feet greyish brown, bill blackish, below grey."—Wing 71 ; tail 47 ; bill $11\frac{3}{4}$ mm.

This bird I have compared with specimens from Cambridge (Mass.), Illinois,

* *T. fuscus* Gm. subsp. n. *rex* Berlepsch & Leverkühn, *Ornis* vi. p. 6 (1890.—Samapata, E. Bolivia) ; *Thryothorus platensis* (error!) Pelzeln, *Zur Orn. Bras.* i. p. 48 (part. : Mattogrosso, Cuyabá : specimens examined).

Wisconsin, and Tonantins, Amazonas,* from all of which it slightly differs by having the throat more mixed with whitish, and the bases of the jugular feathers dull cinereous. Otherwise it agrees, in size and coloration, with females and immature males. Count Berlepsch, to whom it has been submitted, also declares it to be *O. agilis*.

Allianca is the most southerly winter record of the species. An adult female was obtained, in 1884, by Gustav Garlepp at Tonantins, on the Rio Solimões.*

16. *Basileuterus fulvicauda semicervinus* Sel.

[*Muscicapa fulvicauda* Spix, *Ar. Bras.* ii. p. 24. pl. xxviii. fig. 2 (1825.—no locality; cf. Hellmayr, *Abhandl. Bayer. Akad. Wissensch. II. Kl.* xxii. 3. p. 652).]

Basileuterus semicervinus Sclater, *Proc. Zool. Soc. Lond.* 1859. p. 84 (1859.—Nanegal, Western Ecuador).

Nos. 498. ♂ ad., Calama, 31. viii. 1907.—Wing 68; tail 55; bill 12½ mm.

“Iris brown, feet light brown, bill black.”

This bird agrees with specimens from Nanegal and other localities in Western Ecuador in having the supraloral and superciliary stripe deep fawn-colour, and the lower parts somewhat lighter fawn with the middle of the belly largely white. It differs, however, by the clearer olive-green back, and by the rather wider dusky apical band of the rectrices, which besides is strongly tinged with olive-green as in *B. f. fulvicauda*. Without additional material it is, of course, impossible to say if these differences are of any value; but the close resemblance of the Calama bird in itself is a remarkable fact, since in Eastern Ecuador (and probably in other districts of Upper Amazonia) we meet with the well-characterized *B. f. fulvicauda* (see *l.c.* pp. 652-3). The latter appears to have a peculiarly restricted range. All specimens examined by me (two in the British Museum, one in Mus. H. v. Berlepsch) are from Eastern Ecuador, but Spix's type is supposed to have been obtained on the Rio Solimões or one of its branches (Iça or Caquetá).

On the other hand, *B. f. semicervinus* is widely distributed in Colombia and Western Ecuador. I have before me twenty-seven specimens from Bogotá, W. Colombia (Juntas, Jiménez, Sipí, province Chocó), and Ecuador (Nanegal, Paramba, Cachabí, Chimbo, etc.), belonging to the Tring and Munich collections. The late Dr. Sharpe † referred two ♂♂ from Eastern Peru (Santa Cruz, Chyavetas) to *B. uropygialis* (= *fulvicauda*), but I doubt the correctness of this identification, for these birds are more likely to belong with *B. f. semicervinus* or with *B. f. poliothrix* Berl. & Stolzmann.‡

17. *Granatellus pelzelni pelzelni* Sel.

Granatellus pelzelni Sclater, *P. Z. S. Lond.* 1864. p. 606. tab. 37. fig. 1 (1865.—Destacamento (erroneously spelt Destaramento) do Ribeirão, River Madeira); Pelzel, *Zur Ornith. Bras.* iii. 1869. p. 216 (Destac. do Ribeirão, Salto do Girao).

G. p. pelzelni Hellmayr, *Nov. Zool.* xiv. 1907. p. 346 (Borba).

Nos. 150, 726. ♂ ad., ♂ vix ad., Calama, 2. vii., 23. x. 1907. “Iris brown, feet black, bill black, lower mandible grey.”—Wing 55, 54; tail 54, 53; bill 11, 10½ mm.

* Berlepsch, *Journ. f. Ornith.* 1889. p. 98 (not p. 2 as cited by Ridgway).

† *Cat. Birds Brit. Mus.* x. pp. 405-6.

‡ *B. uropygialis poliothrix* Berlepsch & Stolzmann, *Proc. Zool. Soc. Lond.* 1896. p. 331 (1896.—La Gloria, Chanchamayo, Central Peru).

No. 536. ♂ ad., Jamarysinho, Rio Machados, 11. ix. 1907. "Iris brown, feet grey, bill blackish grey."—Wing 55; tail 51; bill $10\frac{1}{2}$ mm.

No. 152. ♀ ad., Calama, 2. vii. 1907. "Iris brown, feet and bill blackish."—Wing 54; tail 53; bill $10\frac{1}{2}$ mm.

This series, which is to be considered topotypical, does not differ in any way from Caura examples. In the males, the slate-grey of the flanks is separated by a distinct white stripe from the rosy red colour of the belly, forehead and crown are glossy black, and behind the eye there is a broad, lengthened stripe of white. The distinctness of *G. p. paraensis* Rothsch.* is thus fully confirmed. The range of the two forms is as follows:—

(a) *G. p. pelzelni* Scl.

North Bolivia: Falls of the Madeira (Rusby).† North Brazil: Desfacamento do Ribeirão, Salto do Girao (Natterer), Borba, Calama (Hoffmanns), on the Rio Madeira; Jamarysinho, Rio Machados (Hoffmanns); Itaituba (Hoffmanns, ‡ Snethlage §), Villa Braga (Snethlage §), Rio Tapajóz; Arumathena, left bank of Tocantins (Snethlage ||). British Guiana: Camacusa (H. Whitely, jun. ¶). Venezuela **: Munduapo, Orinoco (Cherrie); Suapure (Klages), La Pricion, La Union, Nicare (André), Caura River.

(b) *G. p. paraensis* Rothsch.

N.E. Brazil: Prata near Pará (Hoffmanns *).

18. *Pachysylvia thoracica semicinerea* (Scl. & Salv.).

[*Hylophilus thoracicus* Temminck, *Rec. Pl. col.* livr. 29, tab. 173, fig. 1 (1822.—"Brésil," sc. Rio de Janeiro; cf. *Nor. Zool.* xv. 1908, p. 20).]

Hylophilus semicinereus Sclater & Salvin, *P. Z. S. Lond.* 1867, p. 570, tab. xxx, fig. 2 (Pará).

H. thoracicus (nec Temminck) Pelzelin, *Zur Ornith. Bras.* ii. 1858, p. 70 (part.: Salto do Girao, Borba: Rio Madeira); cf. *Nor. Zool.* xiv. 1907, pp. 5-6.

No. 645. ♂ ad., S. Isabel, Rio Preto, 8. x. 1907. "Iris light yellow, feet clear brown, bill dark grey."—Wing 58; tail 47; bill 13 mm.

No. 716. ♂ juv., S. Isabel, 19. x. 1907. "Iris white, feet light grey, bill black."—Wing 56; tail $51\frac{1}{2}$; bill 11 mm.

The differences noticed between topotypical Pará specimens and those from more westerly localities (*l.c.*) do not prove to be constant. The adult ♂ is practically identical with several skins from Pará.

The young bird, whose back is still partly covered with the fluffy, brownish feathers of the nestling plumage, has the bill much shorter, narrower, and **entirely black** (instead of pale brown). The rectrices, too, are longer, distinctly pointed, and interiorly edged with pale yellowish.

* *Bull. Brit. O. C.* xvi. 1906, p. 81 (Prata, Pará); Hellmayr, *Nor. Zool.* xiii. 1906, p. 355.

† Allen, *Bull. Amer. Mus. N.Y.* ii. 1889, p. 79.

‡ Hellmayr, *Nor. Zool.* xiv. 1907, p. 5.

§ Snethlage, *Journ. f. Ornith.* 1908, p. 497.

|| Eadem, *l.c.* p. 521.

¶ Salvin, *Ibis* 1885, p. 204.

** Berlepsch & Hartert, *Nor. Zool.* ix. 1902, p. 10.

The range of *P. t. semicincta* is as follows :—

Lower Amazons: Pará (Wallace, Layard, Snetblage), Prata near Pará (Hoffmanns); Itaituba, left bank of the R. Tapajóz (Hoffmanns, Snetblage); Rio Madeira: Borba, Salto do Girao (Natterer), S. Isabel (Hoffmanns).

19. *Pachysylvia rubrifrons* (Scl. & Salv.).

Hylophilus rubrifrons Sclater & Salvin, *P. Z. S. Lond.* 1867, p. 569, tab. xxv. fig. 1 [1867.—“River Amazons (1850)” —Wallace coll.—sc. Rio Negro *].

H. ferrugineifrons (nec Sclater) Pelzeln, *Zur Ornith. Bras.* ii. 1868, p. 70 (Rio Negro below Santa Barbara; Pará).†

No. 344. ♂ juv., Calama, 7. viii. 1907. “Iris brown, feet and bill grey.”—Wing 57; tail 42; bill 13½ mm.

No. 1009. ♂ vix ad., Maruins, 13. vii. 1908. “Iris dark brown, feet pale yellowish grey, bill black, below grey.”—Wing 59; tail 42½; bill 12½ mm.

No. 1023. Adult (not sexed), Maruins, 16. vii. 1908. “Iris brown, feet pale grey, bill grey.”—Wing 61; tail 44; bill 13½ mm.

These specimens present very little variation *inter se*. I have compared No. 344 with the type in the British Museum, and found them identical except that in the latter the throat and foreneck are somewhat darker, more buffy brownish, less yellowish, and the back of a rather duller green. These slight divergencies are certainly due to difference of age, for the type is a very young bird, this being proved by the fluffy texture of the nape-feathers and the rusty suffusion of the under tail-coverts. In fully or nearly adult birds (Nos. 1023, 1009) the latter are clear yellow, the back is rather brighter green, and the throat buffy yellow.

The figure in the *P. Z. S.* 1867 is wholly misleading: throat and foreneck being represented as pale ferruginous, while they are buffy brownish in the type, the wings being far too rufous, etc.

P. rubrifrons is most nearly related to *P. luteifrons* (Scl.), from British Guiana and Cayenne, but differs in having the frontal and supraloral stripe deep cinnamon-rufous (not dingy ochraceous buff), the upper parts of a clearer green (without any brownish shade), the cheeks and ear-coverts decidedly isabelline (instead of greyish olive), the tail much brighter russet-brown, the throat much more tinged with buff, etc.

P. ferrugineifrons (Scl.), from Bogotá and Venezuela, also bears a certain likeness to *P. rubrifrons*, but may readily be distinguished by its duller, rufescent brown tail, greyish olive cheeks and ear-coverts, whitish throat, greyish white (not yellowish) belly, and especially by the rufous colour of the forehead being much duller and continued over the crown.

The range of *P. rubrifrons*, as known at present, is as follows :—

North Brazil: Rio Negro (Wallace), below Santa Barbara, Rio Negro (Natterer). Rio Madeira ‡: Calama; Maruins on the Rio Machados (Hoffmanns). Pará (Natterer, Snetblage).

* The type was certainly obtained on the Rio Negro, for we learn from *Travels on the Amazons and Rio Negro*, 1853, p. 163, that Mr. Wallace arrived at the city of Barra do Rio Negro on December 31, 1849, and spent all the year 1850 in explorations on that river.

† Although the specimens are no longer to be found in the Vienna Museum, there can be scarcely any doubt that they are rather referable to *P. rubrifrons*, for it is this species that was obtained by Mr. Wallace on the Rio Negro, and more recently by Miss Snetblage in the vicinity of Pará.

‡ Farther to the west, on the Rio Jurua, however, *P. ferrugineifrons* (Scl.) is found. A specimen in the Museu Paulista, kindly sent for my inspection by Professor H. v. Ihering, agrees perfectly with the series from Bogotá and the Cauca Valley in the Munich Museum.

20. *Pachysylvia muscipapina griseifrons* Snelth.

[*Hylophilus muscipapinus* Selater & Salvin, *Nomencl. Av. Neotrop.* p. 156 (1873.—Cayenne).]

Pachysylvia muscipapina griseifrons Snelthage, *Orn. Monber.* xv. p. 160 (1907.—Villa Braga, left bank of the R. Tapajóz); eadem, *Journ. f. Ornith.* 1908. p. 497.

Nos. 897, 915. ♂ ad., Maruius, Rio Machados, 2, S. vi. 1908. "Iris greyish brown or brown, feet plumbeous, bill black, lower mandible grey."—Wing 59, 60½; tail 45, 45½; bill 13, 14 mm. (Munich Museum.)

P. m. griseifrons appears to be a fairly well-marked form. Compared with the series from Cayenne and the Caura Valley in the Munich Museum, the two skins differ by having the back decidedly brighter yellowish green and the sides of the head conspicuously deeper isabelline-rufous. The chin as well as the upper throat are scarcely different from the colour of the lower throat and foreneck, while they are more or less whitish in the typical race. Furthermore, the dull rufescent frontal band, more or less well pronounced in *P. m. muscipapina*, is absent, the forehead being cinereous like the crown and nape, and the lower tail-coverts are of a deeper olive-yellow. There is no difference as regards size between the two forms, whose ranges are as follows:—

(a) *P. muscipapina muscipapina* (Sel. & Salv.).

Cayenne: Oyapoc (Jelski). Surinam (♂ ♀ in Tring Museum, Chunkoo coll.). British Guiana: Corentyn River (Im Thurn), Bartica Grove, Camacusa (H. Whitely, jun., coll.). East Venezuela: Suapuré, La Union, La Pricion in the Caura Valley (E. André coll.).

(b) *P. muscipapina griseifrons* Snelth.

North Brazil: Villa Braga, left bank of the Tapajóz (Snelthage, *type*); Maruius on the Machados, right-hand tributary of the Rio Madeira (Hoffmanns).

21. *Vireo chivi* (Vieill.).

Sylvia chivi Vieillot, *Nouv. Dict.* xi. p. 174 (1817.—ex Azara: Paraguay).

Vireosylvia agilis Pelzeln, *l.c.* p. 73 (Borba).

No. 533. ♀ juv., Jamarysinho, 10. ix. 1907. "Iris dark brown, feet grey-blue, bill grey."

Adult birds obtained by Natterer at Borba agree well with others from Paraguay, Brazil, etc. Cf. my remarks in *Nor. Zool.* xiii. 1906, p. 11.

[22. *Vireo calidris calidris* (Linn.).

Motacilla Calidris Linnaeus, *Syst. Nat.* x. p. 184 (1758.—based on Edwards, *Nat. Hist. Birds* iii. p. 121. pl. 121. fig. inf. [pessima!]: Jamaica).

Vireosylvia mystacalis Pelzeln, *l.c.* p. 73 (Borba).

Natterer shot an adult male (in moult) near Borba, February 10, 1830. Thanks to Dr. Lorenz, this bird is now before me, and proves to be an example of *V. c. calidris*. The superciliary line is bright isabelle as in a long suite from Jamaica, Porto Rico, and Haiti, while it is much paler, dull white or buffy whitish in *V. c. barbatula* (from Cuba and Bahama Islands) and *V. c. barbadensis* (from Santa Lucia, Guadeloupe, S. Vincent, etc.); cheeks and malar region are tinged with pale isabelline, which is not the case in the last-named races; the pileum is dull brownish, the tips of the feathers edged with greenish (in *V. c.*

barbatula and *l. c. barbadensis* the pileum is ashy grey without any greenish shade; there is no trace of a dusky line above the superciliary stripe, etc., etc.

As far as I know Borba is the most southerly record for *l. c. calidris* in its winter quarters.]

[23. *Cyclarhis gujanensis gujanensis* (Gm.).

Tanagra gujanensis Gmelin, *Syst. Nat.* 1. ii. p. 893 (1789.—ex Buffon's "Verderoux": "Guyane").
Cyclarhis gujanensis Pelzeln, *l.c.* p. 74 (Borba).

Cyclarhis g. gujanensis Hellmayr, *Nov. Zool.* xiv. p. 346 (Humaytha, Borba).

Rio Madeira: Borba (Natterer, Hoffmanns), Humaytha (Hoffmanns). Ranges from Cayenne and Pará all over Amazonia to Eastern Peru.]

24. *Progne chalybea chalybea* (Gm.).

Hirundo chalybea Gmelin, *Syst. Nat.* 1. ii. p. 1026 (1789.—ex Brisson, *Orn.* ii. p. 495, tab. 46. fig. 1, and D'Aubenton, *Pl. enl.* 515, fig. 2: Cayenne).

No. 100. ♀ ad., Calama, 23. vi. 1907. "Iris brown, feet bluish black, bill black."—Wing 125; tail 64; bill 11½ mm.

Agrees in colour and size with specimens from Cayenne, Caura (Venezuela), and Pará. The southern *P. chalybea domestica* (Vieill.), which occurs from Bahia and Goyaz southwards, is much larger, the wing varying from 137 to 145, the tail from 70 to 80 mm.

25. *Progne tapera* (Linn.).

Hirundo Tapera Linnaeus, *Syst. Nat.* xii. 1. p. 345 (1766.—"in America," as type locality fixed East Brazil (ex Maregrave) aut. Berl. & Hart. *Nov. Zool.* ix. p. 14).

No. 760. ♀ ad., Allianca, 8. xi. 1907. "Iris brownish grey, feet and bill black."—Wing 123; tail 63; bill 11 mm.

26. *Atticora fasciata* (Gm.).

Hirundo fasciata Gmelin, *Syst. Nat.* 1. ii. p. 1022 (1789.—ex Buffon and D'Aubenton, *Pl. enl.* 724. fig. 2: Cayenne).

Atticora fasciata Pelzeln, *l.c.* p. 18 (Rio Guaporé above los tres barras).

Nos. 889, 890. ♂♂ ad., Marnins, 30. v. 1908. "Iris, feet, and bill black."—Wing 100, 101; tail 72; bill 6 mm.

These examples differ from others obtained in British Guiana and Eastern Venezuela (Caura) in smaller size, less forked tail, broader white breast-band, and more steel-blue (less purplish) gloss of the plumage.

[27. *Atticora melanoleuca* (Wied).

Hirundo melanoleuca Wied, *Reise Brasil.* i. p. 345 (1820.—Rio Belmonte, Bahia).

Atticora melanoleuca Pelzeln, *l.c.* p. 18 (Bananeira, Rio Mamoré; Salto Theotonio).

Rio Madeira: Salto Theotonio (Natterer).]

28. *Dacnis cayana cayana* (Linn.).

Motacilla cayana Linnaeus, *Syst. Nat.* xii. 1. p. 336 (1766.—ex Brisson [excl. syn. Hernandez]: Cayenne).

Dacnis cayana cayana Hellmayr, *Nov. Zool.* xiv. p. 346 (Humaytha, Borba).

D. cyanocephala Pelzeln, *Zur Orn. Bras.* i. p. 25 (Borba).

No. 718. ♀ ad., S. Isabel, Rio Preto, 19. x. 1907. "Iris brown, feet light greyish yellow, bill black."—Wing 61; tail 42½; bill 12 mm.

Specimens from the Rio Madeira agree, in colour and size, with the typical Cayenne form.

29. *Dacnis angelica angelica* Bonap.*

Dacnis angelica (De Filippi MS.) Bonaparte, *Atti Rian. Sci. Ital.* 1844. p. 404 nota (1845—"ex Brasilia": descr. ♂ ad.).

D. cayana (not of Linnaeus) Pelzeln, *l.c.* p. 25 (Salto do Girao).

No. 444. ♀ ad., Calama, 23. viii. 1907. "Iris clear yellow, feet and bill black."—Wing 57; tail 41; bill 10 mm.

The specimen does not bear out the characters mentioned by me in *Nor. Zool.* xii. p. 271. It is even brighter greenish on the back and sides of the belly than Bogotá skins; besides the cheeks and throat are distinctly washed with pale greenish blue. An adult male from Salto do Girao (Natterer coll., Vienna Museum) is not appreciably different from others found in Bogotá collections.

30. *Dacnis flaviventer* Lafr. & D'Orb.

Dacnis flaviventer Lafresnaye & D'Orbigny, *Syn. Ar. i.* in *Mag. Zool.* cl. ii. p. 21 (1837.—"Yuracares, rep. Boliviana").

Nos. 176, 662. ♂♂ ad., Calama, 6. vii. 1907; S. Isabel, 10. x. 1907.—Wing 63; tail 40, 41; bill 12 mm.

No. 340. ♂ imm., Calama, 6. viii. 1907.—Wing 58; tail 41; bill 11½ mm.

Nos. 490, 720. ♀♀ ad., Calama, 30. viii. 1907; S. Isabel, 19. x. 1907.—Wing 64, 61; tail 44, 42; bill 11, 12 mm.

No. 859. ♀ juv., Marmellos, 24. xii. 1907.—Wing 62; tail 44; bill 11½ mm. "Iris red or yellowish red, feet black, plumbeous (720, 859), bill black."

This beautiful bird has recently been recorded from various localities in Amazonia. Mr. Hoffmanns secured a couple at Tefé; † Mr. E. Garbe a female on the banks of the Rio Juruá; ‡ the Pará Museum received several examples from the Upper Pará; § and Miss Sneath met with it on the island of Goyana in the Tapajóz. ||

[31. *Dacnis bicolor* (Vieill.).

Sylvia bicolor Vieillot, *Ois. Amér. Sept.* ii. p. 32. pl. 90 bis (1807.—"très rarement sous la zone boréale et plus communément entre les tropiques."—We substitute *Cayenne* as type locality. Type in Paris Museum examined).

Dendroeca bicolor Pelzeln, *l.c.* p. 71 (Rio Madeira).

Rio Madeira, November 1829 (Natterer).

Natterer's specimens are not different from others obtained in Venezuela and Bahia. It may be mentioned that the two birds registered by Pelzeln s.n. "*Nemosia spec.*" ¶ are young males of the present species.]

* In *Nor. Zool.* xii. 1905, p. 271, I employed the term *melanotis* for the Brazilian race, under the erroneous assumption that *D. angelica* had been based on Colombian specimens. However, *D. melanotis* Strickl. is apparently a synonym of *D. angelica*, while the western form is entitled to the name *arcangelica* Bonap.

† *Nor. Zool.* xiv. p. 42.

‡ *Revis. Mus. Paul.* vi. p. 432.

§ *Journ. f. Orn.* 1908, p. 9.

|| *L.c.* p. 498.

¶ *Orn. Bras.* iii. p. 215 (Cajutúba near Pará).

32. *Cyanerpes caerulea cherriei* Berl. & Hart.

[*Certhia caerulea* Linnaeus, *Syst. Nat.* x. p. 118 (1758.—ex Edwards : Surinam).]

Cyanerpes caerulea cherriei Berlepsch & Hartert, *Nov. Zool.* ix. p. 16 (1902.—Munduapo, Orinoco ; Hellmayr, *l.c.* xiv. p. 347 (Humaytha).

Caereba caerulea Pelzeln, *l.c.* p. 25 (Salto do Girao).

No. 566. ♂ ad., Jamarysiuho, 16. ix. 1907.—Wing 54 ; tail 25 mm.

No. 609. ♀ ad., S. Isabel, 2. x. 1907.—Wing 54 ; tail 27 ; bill 16 mm.

Cf. *Nov. Zool.* xiv. pp. 42–43, where characters and range of this form are given.

[33. *Chlorophanes spiza* (Linn.) subsp.

Motacilla spiza Linnaeus, *Syst. Nat.* x. p. 188 (1758.—ex Edwards : Surinam ; ex l. var. β).

Dacnis atricapilla Pelzeln, *l.c.* p. 26 (Engenho do Guma, Guaporé : Salto Girao).

Rio Madeira : Salto do Girao (Natterer).

I have not seen specimens from the Rio Madeira. They possibly belong to *C. s. caerulea* Cass.*]

34. *Procnias viridis occidentalis* Sel.

[*Hirundo viridis* Illiger, *Prodr. Syst. Mam. et Av.* p. 229 (1811.—based on “L’Hirondelle verte” Temminck, *Cat. Syst. Cub. d’Orn. et Quadrum.* 1807. p. 245. No. 986 : Brasilia ; = ♀) ; cf. Allen, *Bull. Amer. Mus. N. Y.* ii. 1889. p. 70.]

Procnias occidentalis Sclater, *Proc. Zool. Soc. Lond.* xxii. 1854. p. 249 (April 1855.—“Nova Grenada”).

Nos. 603, 627, 654, 655, 660. ♂♂ ad., S. Isabel, Rio Preto, 2, 5, 9, 10. x. 1907.—Wing 82–84, (one) 89 ; tail 49–55 ; bill 9–10 mm.

Nos. 677, 659. ♂♂ jnv., S. Isabel, 10, 11. x. 1907.

No. 920. ♂ juv., Maruins, 9. vi. 1908.

Nos. 605, 653, 704. ♀♀ ad., S. Isabel, 2, 9, 16. x. 1907.—Wing 82–85 ; tail 53–55 mm.

No. 913. ♀ ad., Maruins, 7. vi. 1908.—Wing 85 ; tail 55 mm.

“Iris brown or reddish brown, feet dark grey or blackish, bill black.”

The specimens agree, in coloration and size, with a large series from Colombia (Bogotá and Chocó), Ecuador, and Venezuela (Cumaná). Examples from Eastern Brazil (Bahia and Rio) are much larger (wing 90–95, tail 58–62 mm.) and of a lighter, more greenish (Nile) blue. The latter undoubtedly represent typical *P. viridis viridis*. To my mind, *P. v. occidentalis* is a very well-marked race, though occasionally specimens may be found that do not differ in colour from the typical race. The difference in size, however, is quite constant.

35. *Euphonia aurea aurea* (Pall.) [an subsp. ?].

Parus aureus Pallas in Vroeg’s *Catalogue, Adumbrat.* p. 4 (1764.—Surinam).

Tanagra chlorotica Linnaeus, *Syst. Nat.* xii. 1. p. 317 (1766.—ex Brisson : “Cayania”).

No. 1052. ♂ ad., Maruins, Rio Machados, 22. vii. 1908. “Iris, feet, and bill black.”—Wing 55 ; tail 30½ ; bill 8 mm.

Differs from Cayenne skins in the Munich Museum by its much darker, deep bluish black (instead of bright purple) throat ; the yellow on the anterior portion of the crown is rather more extended, the bill somewhat thicker and stouter, and the outermost rectrix only (instead of the two other ones) has a white spot on the inner web. A large series from different parts of its range is required to establish the

* *Chlorophanes caerulea* Cassin, *Proc. Acad. N. Sci. Philad.* 1864. p. 268 (Yuracares, Bolivia).

geographic races of *E. aurea*, which are far from being satisfactorily understood. Cf. my remarks in *Nov. Zool.* xiv. 1907, p. 6, and *l.c.* xv. 1908, p. 26.

This is the first record from the Madeira district, since the birds enumerated under *E. chlorotica* by Pelzelu turned out to belong to *E. chrysopasta* ScL. & Salv.

[36. *Euphonia violacea lichtensteinii* (Cab.).

[*Fringilla violacea* Linnaeus, *Syst. Nat.* x. p. 182 (1758,—“in calidis regionibus”).]

Phonasca Lichtensteinii Cabanis, *Journ. f. Ornith.* 1860. p. 331 (1860.—Cayenne).

Euphonia Lichtensteinii Pelzelu, *Zur Orn. Bras.* p. 204 (Borba).

Right bank : Borba (Natterer). Not obtained by Mr. Hoffmanns.

Miss Snethlage has lately met with it on the Tapajóz : Goyana, Ilha do Papageio.*]

37. *Euphonia lanirostris lanirostris* Lafr. & D'Orb.

Euphonia lanirostris Lafresnaye & D'Orbigny, *Syn. Ar.* i. in *Mag. Zool.* cl. ii. p. 30 (1837.—Yuracares, Bolivia) ; Hellmayr, *Nov. Zool.* xiv. p. 347 (Humaytha).

Nos. 172, 552. ♂♂ ad., Calama, 6. vii., Jamarysinho, 14. ix. 1907.—Wing 62, 63½ ; tail 35, 36 ; bill 9 mm.

Nos. 3, 95, 173. ♀♀ ad., Calama, 8, 22. vi., 6. vii. 1907.—Wing 58—60 ; tail 33—34 ; bill 8—9 mm.

No. 903. ♀ ad., Marnins, 4. vi. 1908.—Wing 61 ; tail 35 ; bill 9 mm.

“ Iris dark brown or blackish, feet black or plumbeous, bill black.”

The males, while fully corroborating the distinctness of *E. lanirostris*, differ from the type and Natterer's Mattogrosso examples by having the chin-angle narrowly bordered with blackish. The females agree, in coloration, with *E. crassirostris* ScL., from Colombia, Venezuela, etc., but have a much thicker, wider bill. Two (Nos. 3 and 173) have, on the upper surface here and there, especially on the occiput, a distinct slaty or oily gloss. The range of *E. l. lanirostris* is restricted to the Rio Madeira (Humaytha, Calama, etc.), Western Mattogrosso (Villa Maria, São Vicente, Villa Bella, Abrilongo, Chapada), and Northern Bolivia (Yuracares). In Central Peru it is replaced by the nearly allied *E. lanirostris peruviana* Berl. & Stolzmf.

[38. *Euphonia melanura* ScL.

Cf. *Nov. Zool.* xiv. p. 347 (Borba).

Right bank : Borba (Hoffmanns). Not secured on the present occasion.

E. melanura differs from the preceding species by its even (not emarginate) and entirely black tail. In *E. lanirostris* the outermost rectrix (and sometimes also the succeeding one) shows a large white patch on the inner web.

E. melanura is widely distributed in Upper Amazonia.]

39. *Euphonia rufiventris* (Vieill.).

Tanagra rufiventris Vieillot, *Nouv. Dict.* xxxii. p. 426 (1819.—loc. ign.: “type au Muséum d'Histoire Naturelle,—rapporté par Sonnerat”).

Nos. 229, 153. ♂♀ ad., Calama, 2, 16. vii. 1907. “ Iris brown, feet and bill black.”—Wing 61 ; tail 35 ; bill 9—10 mm.

Agreeing with specimens from Eastern Ecuador. For the first time recorded from the Rio Madeira, though widely distributed in Upper Amazonia.

* *Journ. f. Ornith.* 1908. p. 498.

† *Ornis* xiii. pt. ii. 1906. p. 77 (type ex La Merced).

[40. *Euphonia chrysopasta* Scl. & Salv.

Euphonia chrysopasta Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1869. p. 438. pl. xxx. figs. 1, 2 (♂ ♀) (1869.—“in Peruvia orientali in ripis fl. Ucayali (Bartlett); et in ripis fl. Napo, reipubl. Aequatorialis”).

Euphonia chlorotica (errore) Pelzeln, *l.c.* p. 202 (Salto do Girao, Manáos).

Rio Madeira: Salto do Girao (Natterer).

Pelzeln mistook the examples of this species obtained by Natterer for the young (and female) of *E. chlorotica*. *E. chrysopasta* has a wide range in Amazonia, but in Brazil does not seem to occur east of the Madeira Valley. The single female from Salto do Girao in the Vienna Museum is slightly more yellowish green on the back than a series from Bogotá, Manáos, and Venezuela (Caura). In size (wing 56; tail 36 mm.) it agrees with Bogotá skins.]

41. *Calospiza chilensis* (Vigors).

Aglæa Chilensis Vigors, *Proc. Comm. Zool. Soc. Lond.* ii. 1832. p. 3 (1832.—“Chili” errore! We substitute *Bolivia* as type locality).

Calliste yeni auct.

No. 211. ♂ ad., Calama, 12. vii. 1907. “Iris, feet, and bill black.”—Wing 75; tail 54; bill $9\frac{1}{2}$ mm.

Agreeing with examples from Bolivia and Eastern Ecuador (Rio Napo). First record from the Rio Madeira, although Natterer had obtained an immature male at Engenho do Gama, Rio Guaporé, July 30, 1826.* *C. chilensis* agrees with *C. paradisea coelicolor* (Scl.)† in size, extent of golden green about the head, and coloration of the upper wing-coverts, but differs by having the lower back and rump deep scarlet without any yellow. Its distribution is rather curious, for it appears to cross the range of *C. paradisea coelicolor*.

[42. *Calospiza cayana cayana* (Linn.).

Cf. Hellmayr, *Nov. Zool.* xiv. p. 347 (Humaytha).

Left bank: Humaytha (Hoffmanns).]

43. *Calospiza albertinae* (Pelz.).

Calliste albertinae Pelzeln, *Ibis* 1877. p. 337 (1877.—Salto do Girao, Rio Madeira).

C. gyroloides (nec Lafresnaye) Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 207 (part.: Salto do Girao).

Calospiza albertinae Hellmayr, *Nov. Zool.* xii. p. 273 (Igarapé-Assú, Pará); idem, *l.c.* xiii. p. 357

Prata, Pará); Snethlage, *Journ. f. Ornith.* 1908. p. 522 (Alcobaça, Tocantins; descr. ♀).

No. 1060. ♂ ad., Marnins, 30. vii. 1908. “Iris brown, feet and bill bluish black.”—Wing 71; tail 45; bill $10\frac{3}{4}$ mm. (Munich Museum.)

This is the first perfectly adult specimen I have seen, both the type (from Salto do Girao) and the two males from Prata, Pará, being slightly immature. It proves that in fully adult males the throat is dull bluish as in *C. gyroloides* (Laf.), but *C. albertinae* can, of course, easily be recognized by its more yellowish green back and its orange-rufous shoulder-spot. The species evidently has a wide range in Brazil south of the Amazon Valley. Natterer and Hoffmanns obtained it on the Rio Madeira, the latter naturalist as well as Robert met with it at Prata near Pará, and Miss Snethlage took a couple at Alcobaça, on the left bank of the Tocantins.

* *C. yeni* Pelzeln, *Zur Orn. Bras.* iii. p. 206.

† *Calliste tatao* auct.

44. *Calospiza mexicana boliviana* Bonap.

[*Tanagra mexicana* Linnaeus, *Syst. Nat.* xii. 1. p. 315 (1766.—ex. Brisson : Cayana).]

Calospiza boliviana Bonaparte, *C. R. Ac. Sci. Paris* xxxii. p. 80 (1851.—Guarajos, East Bolivia).

Calospiza mexicana boliviana Hellmayr, *Nor. Zool.* xiv. p. 348 (Borba).

Calliste flaviventris (nec Vieillot) Pelzeln, *l.c.* p. 207 (Guaporé, Borba).

Nos. 341, 429. ♀♀ ad., Calama, 6, 19. viii. 1907.—Wing 71, 69½; tail 52; bill 9 mm.

No. 696. ♂ ad., S. Isabel, Rio Preto, 14. x. 1907.—Wing 74; tail 52; bill 9½ mm.

No. 657. ♀ ad., S. Isabel, 9. x. 1907.—Wing 70½; tail 50; bill 9½ mm.

No. 821. ♂ juv., Marmellos (right bank), 17. xii. 1907.—Wing 69; tail 49; bill 9 mm.

"Iris brown, feet and bill black."

Belly deep yellow, shoulder-patch uniform azure-blue, exactly as in specimens from Peru, Ecuador, and Bogotá collections. Sometimes a few of the innermost lesser wing-coverts are narrowly edged with turquoise-blue. Cf. also *Nor. Zool.* xiv. p. 7. *C. m. boliviana* ranges eastwards as far as Pará.

[45. *Calospiza nigrocineta* (Bonap.).

Cf. *Nor. Zool.* xiv. p. 348 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Though occurring in Venezuela (Orinoco-Caura district), British Guiana, and widely distributed in Upper Amazonia, this species has not been recorded from any Brazilian locality east of the Madeira Valley.]

46. *Tanagra episcopus coelestis* Spix.

[*Tanagra Episcopus* Linnaeus, *Syst. Nat.* xii. 1. p. 316 (1766.—ex Brisson : "Brésil").]

T. coelestis Spix, *Ar. Bras.* ii. p. 42. pl. lv. fig. 2. (1825.—Fonteboa, Rio Solimões, fixed as type locality; cf. my revision of Spix's types, p. 676).

T. episcopus coelestis Hellmayr, *Nor. Zool.* xiv. p. 348 (Borba).

T. episcopus Pelzeln, *l.c.* p. 208 (part. : Borba).

No. 347. ♂ ad., Calama, 7. viii. 1907.—Wing 91; tail 66; bill 13½ mm.

"Iris brown, bill and feet black."

Agrees with the type and other Upper Amazonian specimens.

47. *Tanagra palmarum melanoptera* ScL.

[*Tanagra palmarum* Wied, *Reise Brasil.* ii. p. 76 (1821.—Canavieras, Bahia).]

T. melanoptera (Hartlaub MS.) Sclater, *Proc. Zool. Soc. Lond.* xxiv. 1856. p. 235 (January 1857.—Eastern Peru, etc.).

Nos. 295, 477. ♂♂ ad., Calama, 29. vii., 28. viii. 1907. "Iris brown, feet and bill black."—Wing 94, 98; tail 70, 72; bill 13½, 14 mm.

One of these specimens is typical of *melanoptera*, having mere traces of dark olive-grey edges to some of the outer primaries, exactly like examples from the Caura Valley, Trinidad, etc., in the Munich Museum. The other (No. 295) slightly points towards *T. p. palmarum* of Eastern Brazil, though the greenish edges of the remiges are duller and less distinct than in the latter. Birds from the vicinity of Pará, however, agree in coloration with the typical race, but are smaller. Cf. *Nor. Zool.* xii. pp. 273-4.

48. *Ramphocelus nigrogularis* (Spix).

Tanagra nigrogularis Spix, *Av. Bras.* ii. p. 35. pl. xlvii. (1825.—“ad flumen Solimões in sylvis pagi St. Pauli”).

Ramphocelus nigrigularis Pelzeln, *l.c.* p. 210 (Borba).

No. 742. ♂ imm., Allianca, 1. xi. 1907.—Wing 84; tail 77; bill 14 mm.

“Iris brown, feet black, bill black, base of lower mandible white.”

Miss Snethlage* has recently obtained specimens at Cussary, south bank of the Amazons, opposite Monte Alegre, the most easterly locality as yet known.

49. *Ramphocelus carbo carbo* (Pall.).

Lanius (Carbo) Pallas in Vroeg's *Catal. rais., Adumbrat.* p. 2 (1764.—Surinam).

Ramphocelus albirostris Pelzeln, *l.c.* p. 210 (Ribeirao).

R. jacapa auct.

No. 418. ♂ ad., Calama, 18. viii. 1907.—Wing 80; tail 77; bill 15 mm.

Nos. 606, 687. ♀♀ ad., S. Isabel, 2, 12. x. 1907.

No. 424. ♀ juv., Calama, 18. viii. 1907.

“Iris brown, feet and bill black.”

Identical with topotypical specimens from Surinam and others from Cayenne, etc.

A nest taken October 12, 1907, at S. Isabel with the parent bird (No. 687) is a fairly compact structure of dry leaves, twigs, roots and stems of various plants, and has no other lining, except that the material is finer in the middle. The cup is about 50 mm. deep and 70 mm. across. The eggs are light greenish blue with black points and spots, crowded around the larger end. They measure from 21 to 22 by 16 to 17 mm.

50. *Piranga rubra rubra* (Linn.).

Fringilla rubra Linnaeus, *Syst. Nat.* x. p. 181 (1758.—based on Catesby, *Nat. Hist. Carolina, etc.* i. p. 56. pl. 56: *Carolina, Virginia*).

Tanagra aestiva Gmelin, *Syst. Nat.* 1. ii. p. 889 (1789.—based on the same).

Piranga aestiva auct. brit.

No. 799. ♀ ad., Allianca, 22. xi. 1907. “Iris brown, feet plumbeous, bill yellowish grey.”—Wing 92; tail 72; bill 17 mm.

Practically identical with specimens from Eastern United States, Colombia, etc. Apparently the first record from Brazil, although the bird is a common winter visitor in the northern parts of South America.

51. *Lanio versicolor* (Laftr. & D'Orb.).

Tachyphonus versicolor Lafresnaye & D'Orbigny, *Syn. Av.* i. in *Mag. Zool.* cl. ii. p. 28 (1837.—Yuracares, Bolivia).

Lanio versicolor Hellmayr, *Nov. Zool.* xiv. p. 349 (Humaytba).

No. 766. ♂ ad., Allianca, 8. xi. 1907. “Iris brown, feet and bill black.”—Wing 82; tail 68; bill 13½ mm.

Within Brazilian limits, the species is as yet only known to occur in the Madeira Valley.

* *Journ. f. Orn.* 1907. p. 294.

52. *Phoenicothera rubra peruviana* Tacz.

[*Tachyphonus ruber* Vieillot, *Nour. Dict.* xxxii. p. 359 (1819.—“île de la Trinité”).]

Phoenicothera peruvianus Taczanowski, *Orn. Pérou* ii. p. 498 (1884.—Peru : Yurimaguas and Monterico).

P. rubra peruviana Hellmayr, *Nov. Zool.* xiv. p. 348 (Humaytha).

P. rubra (nec Vieillot) Pelzeln, *l.c.* p. 212 (Borba).

No. 203. ♂ imm., Calama, 10. vii. 1907.—Wing 93 ; tail 82 ; bill $17\frac{1}{2}$ mm.

Nos. 34, 122. ♀ ♀, Calama, 13, 28. vi. 1907.—Wing 87, 82 ; tail 77, 74 ; bill 16 mm.

“Iris brown or greyish brown, feet brown or yellowish grey, bill greyish, darker above.”

In *Nov. Zool.* xiv. p. 44, I have given a *résumé* of the ranges and characters of *P. r. peruviana* and its allies, to which I have nothing to add.

53. *Tachyphonus luctuosus* Lafr. & D'Orb.

Tachyphonus luctuosus Lafresnaye & D'Orbigny, *Syn. Ac. i.* in *Mag. Zool.* cl. ii. p. 29 (1837.—Gñarayos, Bolivia) ; Pelzeln, *Zür Orn. Bras.* iii. p. 213 (Salto Girao, Borba) ; Hellmayr, *Nov. Zool.* xiv. p. 349 (Humaytha, Borba*).

Nos. 210, 423, 475. ♂♂ ad., Calama, 12. vii., 18, 28. viii. 1907.—Wing 60—61 ; tail 50—53 ; bill 11—12 mm.

No. 895. ♂ ad., Maruins, 1. vi. 1907.—Wing 62 ; tail 54 ; bill 11 mm.

Nos. 225, 398, 466. ♀ ♀ ad., Calama, 15. vii., 15, 27. viii. 1907.—Wing 57—58½ ; tail 50—54 ; bill 11—12 mm.

No. 752. ♀ juv., Allianca, 6. xi. 1907.—Wing 58 ; tail 54 ; bill 12 mm.

Absolutely identical with topotypical Bolivian examples. The young female differs from the adult ones by having the cap washed with olive-greenish, the sides of the head dull brownish instead of cinereous, the under parts of a deeper, more buffy yellow, and the throat tinged with yellowish.

[54. *Tachyphonus phoenicius* Swains.]

Tachyphonus phoenicius Swainson, *Anim. in Menag.* p. 311 (1833.—loc. ign., hab. substit. East Peru, aut. Berlepsch).

T. phoeniceus Pelzeln, *Zur Orn. Bras.* iii. p. 214 (Borba).

Right bank : Borba (Natterer). Apparently of wide distribution in Amazonia, being recorded from British Guiana and Eastern Peru.

Natterer's specimens from Borba agree well with others from Guiana.]

[55. *Tachyphonus surinamus insignis* Hellm.]

[*Turdus surinamus* Linnaeus, *Syst. Nat.* xii. 1. p. 297 (1766.—ex Brisson : Surinam).]

Tachyphonus surinamus insignis Hellmayr, *Nov. Zool.* xiii. p. 357 (1906.—Bemfica, Pará).

T. surinamus Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 213 (part. : Pará, Borba) ; Snethlage, *Journ. f. Orn.* 1907. p. 295 (Pará, Rio Macajubim, S. Antonio do Prata).

Right bank : Borba (Natterer).

Dr. Lorenz has kindly sent for my inspection the three adult males obtained by Natterer. One is practically identical with topotypical Pará examples, while the two others have the ochreous patch on the sides of the chest even darker and more decidedly mixed with ferruginous.

T. s. insignis is hitherto only known from the Pará district, and from Borba,

* The latter locality inadvertently omitted.

lower Rio Madeira. North of the Amazons, near Manáos, it is represented by *T. s. surinamus*, while farther up, in the vicinity of Teffé, and on the upper Rio Negro (Marabitanas, Rio Içanna) another closely allied race, *T. s. napensis*, takes its place. Cf. *Nor. Zool.* xiii. pp. 357-8.]

56. *Tachyphonus cristatus madeirae* n. subsp.

[*Tanagra cristata* Linnaeus, *Syst. Nat.* xii. 1. p. 317 (1766.—ex Brisson : Cayenne).]

Tachyphonus cristatus (nec Linnaeus) Pelzeln, *Zur Orn. Bras.* iii. p. 213 (part. : Engenho do Gama, Rio Guaporé ; Borba, r. Madeira).

T. cristatus subsp. Hellmayr, *Nor. Zool.* xiv. p. 349 (Humaytha).

Nos. 209, 249, 329, 386, 483. ♂♂ ad., Calama, 12, 22. vii., 2, 12, 29. viii. 1907.—Wing 79—83 ; tail 70—77 ; bill 12½—14 mm. "Iris brown, feet and bill black."

♂ ad. Nearest to, and agreeing with, *T. cristatus brunneus* (Spix), of Eastern Brazil (from Pará to S. Paulo), in having the crest deep fiery or vermilion-red and bordered in front only by a rather narrow, bright buff line, but crest-feathers much shorter—scarcely longer than in *T. c. cristatus*, from Cayenne, etc.—and whole throat, except a small blackish chin-spot, deep ochraceous buff.

♀ ad. Not different from that of *T. c. cristatus*.

Type in Tring Museum : ♂ ad., Calama, 2. viii. 1907 (W. Hoffmanns coll., No. 329).

Besides the above series, I have before me the adult male from Humaytha obtained on Mr. Hoffmanns' first trip to the Rio Madeira, and several examples, among them an adult female, belonging to the Vienna Museum (Natterer coll.). Compared with some thirty skins from Pará, Pernambuco, Bahia, and Rio de Janeiro, the Madeira birds have the crest invariably shorter and generally of a deeper fiery red. Even more strongly marked is the difference in the extent of the ochraceous gular spot. The Calama and Humaytha specimens have the whole throat, with the exception of a very small black chin-spot, deep ochraceous buff, while in *T. c. brunneus* there is but a broad stripe of a clearer buff along the middle of the throat, the sides of the latter, as well as a large patch on the chin, being dull black like the remainder of the lower parts. *T. c. cristatus* (and the doubtfully distinct *T. c. cristatellus*) may be distinguished from the new form by their smaller gular spot, and particularly by the much lighter, orange-red crest, bordered in front and laterally by a broad, creamy buff margin.

T. c. madeirae appears to be restricted to the Madeira Valley and its headwaters, Guaporé, etc. ; for specimens from the Rio Negro (Barcellos, Marabitanas) and Northern Peru (Loretoyacu, Peru) agree in every respect with Bogotá skins (so-called *cristatellus*).*

57. *Eucometis penicillata penicillata* (Spix).

Tanagra penicillata Spix, *Ar. Bras.* ii. p. 36. pl. xlix. fig. 1 (1825.—no locality ; type examined).

Eucometis penicillata Pelzeln, *Zur Orn. Bras.* iii. p. 212 (Borba) ; Hellmayr, *Nor. Zool.* xiv. p. 349 (Humaytha).

Nos. 413, 414. ♂ imm., ♂ juv., Calama (island), 17. viii. 1907. "Iris greyish brown, feet pale greyish yellow, bill black."—Wing 85, 82 ; tail 82 ; bill 15½, 16 mm.

* The supposed female of *Tachyphonus nattereri* Pelz. (*l.c.* p. 328 : ♂ ad. Villa Maria, Rio Paraguay) was secured at Salto do Girao by Natterer. It is, however, doubtful whether it really belongs to *T. nattereri*, and the question must be left in abeyance until adult males from that locality come to hand.

Adult birds from the Rio Madeira agree with the type in the Munich Museum. The two young ones from Calama have the bill blackish, and, like Peruvian examples, the legs and feet pale fleshy brown. Cf. my remarks, *l.c.*, pp. 349-50.

[58. *Cypsnagra ruficollis pallidigula* Hellm.

Cf. *Nov. Zool.* xiv. p. 350 (Humaytha).

Left bank: campos of Humaytha (Hoffmanns). Also occurring in Ceará, N.E. Brazil.]

59. *Nemosia pileata* (Bodd.).

Tanagra pileata Boddaert, *Tabl. Pl. col.* p. 45 (1783.—ex D'Aubenton, *Pl. enl.* 720. fig. 2 = ♂ ad. : Cayenne).

Nos. 826, 828, 834. ♂♂ ad., Marmellos, 18, 19, 20. xii. 1907. "Iris and feet yellow, bill black."—Wing 67—70; tail $45\frac{1}{2}$ —49; bill 12 mm.

Nos. 827, 829. ♂♂ imm., Marmellos, 18, 19. xii. 1907. "Iris and feet yellow, bill black, lower mandible yellowish grey."

No. 819. ♀ ad., Marmellos, 17. xii. 1907. "Bill black, below yellowish grey."—Wing 64; tail 43; bill $11\frac{1}{2}$ mm.

Rather brighter on the upper parts, but not otherwise different from Bahia specimens.

N. pileata, though widely distributed in Amazonia and Brazil, is very localized, frequenting exclusively the "campos" districts. First record from the Rio Madeira.

60. *Hemithraupis flavicollis centralis* (Hellm.).

[*Nemasia flavicollis* Vieillot, *Nouv. Dict.* xxii. p. 491 (1818.—"l'Amérique méridionale").]

Nemosia flavicollis centralis Hellmayr, *Nov. Zool.* xiv. p. 350 (1907.—Humaytha, Rio Madeira).

N. flavicollis (nec Vieillot) Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 215 (Engenho do Gama).

No. 886. ♀ ad., Calama, 30. iii. 1908. "Iris brown, feet grey, bill bluish grey, below paler."—Wing 65; tail 52; bill 13 mm.

On his first expedition to the Rio Madeira, in 1906, Mr. Hoffmanns obtained an adult male, the type, at Humaytha, left bank. In the male sex, *H. f. centralis* differs at a glance from all the other races of the *flavicollis* group by the deep velvety black coloration of the upper parts. The female may be distinguished by its darker, dull olive upper parts, and rather brighter yellow belly. In size and in the large, rather strong bill it resembles the female of *H. f. melanoxantha*.

A review of the various geographic races is given in *Nov. Zool.* xiv. pp. 350-53. *H. f. centralis* inhabits the basin of the Madeira and its tributaries.

61. *Thlypopsis sordida amazonum* Sl. (?).

[*Nemosia sordida* Lafresnaye & D'Orbigay, *Syn. Av.* i. in *Mag. Zool.* cl. ii. p. 28 (1837.—Yuracares, rep. Boliviana—type examined; cf. *Nov. Zool.* xiii. pp. 310-11).]

Thlypopsis amazonum Sclater, *Cat. Birds Brit. Mus.* xi. p. 229 (1886.—Lower Ucayali, East Peru)

Nemosia fulvescens Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 215 (pt. : Rio Madeira).*

No. 901. ♂ fere ad., Marnins, 3. vi. 1908. "Iris dark greyish brown, feet plumbeous, bill blackish, below grey."—Wing 64; tail 51; bill $11\frac{1}{2}$ mm.

This specimen differs from an adult male in Count Berlepsch's collection

* Erroneously included among the localities of *N. s. sordida* in *Nov. Zool.* xiii. p. 311.—Natterer's specimen is no longer in the Vienna Museum.

(La Merced, Chanchamayo ; Kalinowski leg.) by its much smaller size, shorter as well as deeper bill, and by having the sides slightly more brownish grey, less purely cinereous. From *N. s. sordida* the Marinius bird may be distinguished by the dull brownish grey (instead of deep buff or ochraceous buff) sides and flanks, white (not deep buff) under tail-coverts, more olive-grey (less greenish) upper parts, etc.

Additional material is required to establish the status of the Madeira form.

62. *Arremon silens* (Bodd.).

Tanagra silens Boddaert, *Tabl. Pl. enl.* p. 46 (1783.—ex D'Aubenton, *Pl. enl.* 742 : Cayenne).

No. 790. ♂ juv., Allianca, 16. xi. 1907.—Wing 72 ; tail 59 ; bill 13 mm.

No. 579. ♀ ad., Jamarysinho, 21. ix. 1907.—Wing 71 ; tail 56 ; bill 13½ mm.

“ Iris brown, feet yellowish grey (light grey), bill black.”

Agreeing, in size and coloration, with Pará examples.

63. *Saltator maximus* (P. L. S. Müll.).

Tanagra mazima P. L. S. Muller, *Natursyst.* Suppl. p. 159 (1776.—ex D'Aubenton, *Pl. enl.* 205 : Cayenne).

Saltator magnus auct.

No. 707. ♀ ad., S. Isabel, Rio Preto, 16. x. 1907.

“ Iris brown, feet grey, bill black.”

64. *Saltator coerulescens azarae* D'Orb.

[*Saltator coerulescens* Vieillot, *Nouv. Dict.* xiv. p. 105 (1817.—ex Azara, no. 81 : Paraguay).]

Saltator Azarae D'Orbigny, *Voyage Amér. mérid., Oiseaux*, p. 287 (betw. 1838 and 1847, part. : Moxos, Eastern Bolivia ; cf. Hellmayr, *Nov. Zool.* xiii. 1906. pp. 314-5) ; Pelzeln, *Zur Orn.* Bras. iii. 1869. p. 219 (part. : Borba).

No. 1071. ♀ ad., Calama, 10. ix. 1908. “ Iris brown, feet grey, bill black.”—Wing 99 ; tail 88 ; bill 18½ mm.

Agrees with Peruvian specimens. The upper parts and sides of the head are very dark slate-grey, the outer webs of the remiges scarcely paler ; the foreneck and breast dingy cinereous, passing into buff in the middle of the abdomen ; the lower tail-coverts deep ochraceous.

S. c. azarae inhabits North-Eastern Bolivia (Moxos), Brazilian Amazonia from the Madeira Valley westwards, Peru, Eastern Ecuador, etc. Farther to the south, on the Rio Guaporé (Villa Bella de Mattogrosso), etc., the typical race, *S. c. coerulescens*, is met with ; while in North-Eastern Brazil (Marajó, Mexiana, Amapá) another close ally, *S. c. mutus* Scl., takes its place. Cf. *Nov. Zool.* xiii. pp. 314-15.

[65. *Schistochlamys atra* (Gm.).

Cf. *Nov. Zool.* xiv. p. 353 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Widely distributed in South America.]

66. *Pitylus grossus* (Linn.).

Loxia grossa Linnaeus, *Syst. Nat.* xii. 1. p. 307 (1766.—“ America ” : ex Brisson ; we substitute Cayenne as type locality).

Pitylus grossus Pelzeln, *l.c.* p. 220 (Borba).

Nos. 75, 337. ♂♂ ad., Calama, 19. vi., 5. viii. 1907. “ Iris brownish, feet black, bill bright red.”—Wing 98, 96 ; tail 90 mm,

Nos. 145, 338. ♀, ♀ juv., Calama, 1. vii., 5. viii. 1907. "Iris brown, feet black, bill light red."

[67. *Pitylus canadensis canadensis* (Linn.).

Loxia canadensis Linnaeus, *Syst. Nat.* xii. 1. p. 304 (1766.—ex Brisson: "Canada," errore! We substitute *Cayenne* as type locality).
Pitylus cayanaensis Pelzeln, *l.c.* p. 221 (Borba).

Right bank: Borba (Natterer).

The range of this form extends, in the east, to Pará, and to the north as far as Cayenne, British Guiana, and Marabitanas (upper Rio Negro). In North-East Brazil (Pernambuco) it is represented by *P. c. frontalis* Hellm.,* in South-Eastern Brazil (from Bahia to Rio de Janeiro) by *P. c. brasiliensis* (Cab.).†]

[68. *Cyanocompsa rothschildii* (Bartl.).

Guiraca rothschildii E. Bartlett, *Ann. & Mag. Nat. Hist.* (6) vi. p. 168 (1890.—R. Carimang, British Guiana); cf. Hellmayr, *Nov. Zool.* xii. 1905. p. 277 (crit.).
G. cyanoides (nec Lafresnaye) Pelzeln, *Zur Orn. Bras.* iii. p. 222 (Salto Girao, Borba).
G. cyanea Sharpe, *Cat. Birds B. Mus.* xii. p. 71 (part.: specimens s—a¹, e¹—i¹).

Rio Madeira: Salto Girao, Borba (Natterer).

Natterer's specimens from the Rio Madeira, as well as those obtained near Engenho do Gama, Rio Guaporé, and at Marabitanas, upper Rio Negro, agree perfectly with typical Guianan birds. All records of *C. cyanea* from Amazonia and the Guianas refer to the present species, which is the only one found in those regions. I have examined examples from Cayenne, Brit. Guiana, Pará, Orinoco (Mundnapo, Caúra), Teffé, North Peru (Samiria, Nauta, etc.), Rio Negro, Rio Madeira, etc. *C. cyanea* (Linn.) is restricted to Eastern Brazil, south of Pernambuco.]

69. *Oryzoborus angolensis brevirostris* Berl.

[*Loxia angolensis* Linnaeus, *Syst. Nat.* xii. 1. p. 303 (1766.—ex Edwards: "Angola"—errore! We substitute *East Brazil* as type locality).]
Oryzoborus angolensis brevirostris Berlepsch, *Nov. Zool.* xv. p. 119 (1908.—Cayenne).

Nos. 643, 669, 695. ♂♂ ad., S. Isabel, Rio Preto, 8, 10, 14. x. 1907. "Iris brown, feet and bill black."—Wing 59; tail 55, 56 mm.

The specimens agree with others from Cayenne, Trinidad, and Eastern Ecuador (Napo). East Brazilian skins (Bahia, Rio de Janeiro) have larger, stouter bills, the lower parts of a clearer chestnut, and the alar speculum rather more extended.

70. *Sporophila lineola* (Linn.).

Loxia lineola Linnaeus, *Syst. Nat.* xii. 1. p. 304 (1766.—"Asia"—errore! We substitute *Surinam* as type locality; cf. *Nov. Zool.* ix. p. 26).

Nos. 737, 738. ♂♂ ad., Calama, 30. x. 1907. "Iris, feet, and bill black."—Wing 60; tail 47; bill 8 mm.

Both with a broad white stripe along the middle of the forehead and crown, and with the under parts pure white, without trace of blackish cross-lines.

* *Nov. Zool.* xiii. p. 277 (1905.—São Lourenço, Pernambuco).

† *Caryothraustes brasiliensis* Cabanis, *Mus. Hein.* i. p. 141 (1851.—Bahia).

71. *Sporophila castaneiventris* Cab.

Sporophila castaneiventris Cabanis in Schomburgk, *Reisen Brit. Guiana* iii. p. 679 (1848.—Cumaka, coast of Brit. Guiana); Hellmayr, *Nor. Zool.* xiv. p. 353 (Humaytha).

Spermophila castaneiventris Pelzeln, *l.c.* p. 225 (Borba).

No. 833. ♂ ad., Marmellos, 19. xii. 1907. "Iris brown, feet and bill black."—Wing 50; tail 42; bill 8 mm.

Perfectly identical with specimens from French Guiana, collected by Monsieur Le Mout, in the Munich Museum.

[72. *Volatinia jacarina jacarina* (Linn.).

Cf. *Nor. Zool.* xiv. p. 353 (Humaytha).

Left bank : Humaytha (Hoffmanns).]

[73. *Myospiza manimbe* (Licht.).

Cf. *Nor. Zool.* xiv. p. 353 (Humaytha).

Left bank : Humaytha (Hoffmanns).

The single male, obtained on Mr. Hoffmann's first journey, agrees well with Bahia skins.]

[74. *Myospiza aurifrons* (Spix).

Tanagra aurifrons Spix, *Av. Bras.* ii. p. 38. pl. 1. fig. 2 (1825.—"in provincia Babia"—errore !

We substitute *Fontebaa*, Rio Solimoëns); Hellmayr, *Abhandl. Akad. Wissensch. München*, vol. xxii, 3, 1906. p. 673 (crit.).

Coturniculus peruanus Pelzeln, *l.c.* p. 230 (Borba).

Right bank : Borba (Natterer).

Widely distributed in Amazonia. *M. aurifrons* is evidently specifically distinct from the preceding form.]

[75. *Paroaria gularis gularis* (Linn.).

Tanagra gularis Linnaeus, *Syst. Nat.* xii. 1. p. 316 (1766.—ex Brisson : "America" ; we fix *Cayenne* as type locality).

Paroaria gularis Pelzeln, *l.c.* p. 228 (part. : Borba).

Right bank : Borba (Natterer).

Natterer's examples, for the loan of which I am indebted to Dr. Lorenz, of Vienna, agree well with others from Cayenne and Lower Amazonia ; perhaps they have not quite so much black round the eye.

Farther south, on the Rio Guaporé (Villa Bella de Mattogrosso), it is replaced by *P. g. cervicalis* Sel.,* which extends into Eastern Bolivia (Mojos, etc.). Cf. *Nor. Zool.* xiv. p. 10.]

76. *Ostinops viridis* (P. L. S. Müll.).

Oriolus viridis P. L. S. Müller, *Natursyst.* Suppl. p. 87 (1776.—based on D'Aubenton, Pl. enl. 328 : Cayenne).

Ostinops viridis Pelzeln, *l.c.* p. 192 (Borba).

Nos. 309, 570, 587. ♂♂ ad., Calama, 31. vii. 1907 ; Jamarysinho, 18, 24. ix. 1907. "Iris light blue, feet black, bill light yellowish green, apical half bright red."—Wing 250—265 ; tail 180—190 ; bill 63—67 mm.

* *Paroaria cervicalis* Selater, *Cat. Coll. Amer. Birds*, p. 108 (1862.—Bolivia).

No. 287. (♀) Calama, 29. vii. 1907. "Iris grey-brown, bill pale grey, apical half yellowish red."—Wing 210 ; tail 145 ; bill 58 mm.

The specimens agree well with others from Cayenne and Eastern Ecuador.

77. *Gymnostinops yuracares* (Lafr. & D'Orb.).

Cassicus yuracares Lafresnaye & D'Orbigay, *Syn. Av.* ii. in *Mag. Zool.* cl. ii. p. 2 (1838.—Yuracares, rep. Boliviana).

Nos. 967, 968, 986, 987. ♂♂ ad., Maruins, 3, 9. vii. 1908.—Wing 255—273 ; tail 195—210 ; bill 74—77 mm.

Nos. 965, 969. ♀♀, Maruins, 30. vi., 3. vii. 1908.—Wing 205 ; tail 162, 167 ; bill 56, 57 mm.

"Iris brown, feet black, bill black, tip clear red or yellowish red ; bare space at base of lower mandible greyish pink or flesh-colour."

Specimens from the Rio Napo (Eastern Ecuador) in the Munich Museum are of a rather more yellowish tinge on the head, mantle, and throat.

78. *Cacicus cela cela* (Linn.).

Parus Cela Linnaeus, *Syst. Nat.* x. p. 191 (1758.—"in Iudiis," errore ! We substitute *Surinam* ; cf. *Nov. Zool.* xiii. p. 20).

Cassicus persicus Pelzeln, *l.c.* p. 193 (Borba).

Nos. 502, —. ♂♂ ad., Calama, 1. ix. 1907 ; Marmellos (left bank), 21. xii. 1907.—Wing 157, 160 ; tail 108, 110 ; bill 36 mm.

Nos. 412, 736. ♀♀ ad., Calama, 17. viii., 30. x. 1907.—Wing 126, 122 ; tail 91, 85 ; bill 30 mm.

No. 411. Juv., Calama, 17. viii. 1907.

"Iris light blue, feet black, bill yellowish green."

The adult birds agree, in colour and size, with others from Cayenne, Venezuela, etc.

[79. *Cacicus haemorrhous* (Linn.) subsp.

Cf. *Nov. Zool.* xiv. 1907. p. 354 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Unfortunately Mr. Hoffmanns did not obtain additional specimens on his second journey, and I am, consequently, still in doubt about its proper identification. The single adult male is much larger than either *C. haemorrhous* or *C. pachyrhynchus* Berl.*]

[80. *Dolichonyx oryzivora* (Linn.).

Emberiza Oryzivora Linnaeus, *Syst. Nat.* xii. 1. p. 311 (1766.—ex Catesby, Edwards, Brisson : Cuba, etc.).

Dolichonyx oryzivorus Pelzeln, *l.c.* p. 199 (Rio Madeira).

This North American migrant was secured by Natterer in November 1829, on the banks of the Rio Madeira.]

[81. *Molothrus bonariensis bonariensis* (Gm.).

Tanagra bonariensis Gmelin, *Syst. Nat.* 1. ii. p. 898 (1789.—based on D'Aubenton, Pl. enl. 710 : Bonaria).

Molothrus sericeus Pelzeln, *l.c.* p. 200 (Borba).

Right bank : Borba (Natterer).

The single adult male taken by Natterer, March 11, 1830, agrees in every

Journ. f. Ornith. 1889. p. 299 (type ex Tarapoto, Northern Peru).

respect with South Brazilian examples. The wing measures 112, the tail $89\frac{1}{2}$, the bill $19\frac{1}{2}$ mm. From *M. b. atronitens* Cab. (ex Pará, Guiana, Orinoco delta, etc.) it differs by its much larger size and stronger as well as longer bill; from *M. b. venezuelensis* Stone by its stouter bill and decidedly purple (not steel-blue) coloration.

Cf. *Abhandl. Bayer. Akad. Wissensch. II. Cl.* vol. xxii, 3, 1906. pp. 613-4.]

82. *Lamprosar tanagrinus tanagrinus* (Spix).

Icterus tanagrinus Spix, *Av. Bras.* i. p. 67, pl. lxiv, fig. 1 (1824.—“in locis sylvaticis Paræ”).

Lamprosar tanagrinus Pelzeln, *l.c.* p. 200 (Borba); Hellmayr, *Nov. Zool.* xiv. p. 354 (Humaytha, Borba).

No. 1965. Immature, Manicoré, 24. viii. 1908. “Iris dark brown, feet and bill black.”—Wing 100; tail 97; bill 19 mm.

Agrees with Spix's types, but somewhat less glossy. Cf. my remarks in *Abhandl. Bayer. Akad. Wissensch. II. Cl.* xxii. 3. pp. 615-6.

Farther to the south, on the Guaporé, the typical form is replaced by *L. t. violaceus* Hellm. (cf. *l.c.*).

83. *Leistes militaris* (Linn.).

Emberiza militaris Linnaeus, *Syst. Nat.* x. p. 178 (1758.—“in America, Asia”—as type locality fixed Surinam; cf. *Nov. Zool.* xiii. p. 21).

Leistes erythrorhax Pelzeln, *l.c.* pp. 197, 326 (Rio Madeira, Borba).

No. 914. ♂ ad., Marauins, 7. vi. 1908.—Wing 99; tail 66; bill $22\frac{1}{2}$ mm.

No. 855. ♂ juv., Marmellos, 23. xii. 1907.

No. —. ♂ ad., S. Isabel, Rio Preto.—Wing 97; tail 64; bill $21\frac{3}{4}$ mm.

Nos. —, 836. ♀ ♀, S. Isabel, Sta. Maria de Marmellos, 29. xii. 1907.—Wing 87, 88; tail 57, 60; bill 20 mm.

“Iris brown, feet and bill black.”

The specimens agree with others from Cayenne, Surinam, and Panamá. The bill is nearly black in the adult males, brown in the immature male and females. Cf. *Nov. Zool.* xiv. pp. 10-11.

[84. *Cyanocorax chrysops diesingii* Pelz.

[*Pica chrysops* Vieillot, *Nour. Dict.* xxvi. p. 124 (1818.—ex Azara: Paraguay).]

Cyanocorax Diesingii Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xx, 1, p. 164 (1856.—“Borba in Brasilia”); Pelzeln, *l.c.* iii. p. 189 (Borba).

Right bank: campos of Borba (Natterer).

The types, an adult male and a young female, are still the only specimens known of this well-marked form. I am greatly indebted to my friend Dr. von Lorenz, of Vienna, for the loan of these valuable objects. Compared with a good series of *C. c. chrysops* from Paraguay and Southern Brazil (S. Paulo), the adult bird differs in many important particulars. The feathers of the pileum are somewhat stiffer and much more elongated, the longest measuring fully 20 mm., so as to form a very distinct, erect crest; the wings are longer; the bill decidedly shorter; the yellowish white apical portion of the rectrices conspicuously shorter. The blue spots on the sides of the head are much more restricted; the supra-ocular spot is much smaller and uniform lilac-blue (not mixed with sky-blue), and in the malar region there is only a narrow streak of pale lilac-blue, while in *C. c. chrysops* the whole of the cheeks

and malar region is deep violet. The occiput and nape are uniform whitish blue. *C. c. chrysops* has the former only of that colour, which passes into bright violet on the hindneck. The adult male shows the following dimensions : wing 167; tail 163; bill 26½ mm.; whereas nine adult birds of *C. c. chrysops* measure : wing 150—160; tail 160—170; bill 29—33 mm.]

85. *Ochthornis littoralis* (Pelz.).

Elainea littoralis Pelzeln, *Zur Orn. Bras.* ii, pp. 108, 180 (1868.—Cachoeira de Guajarázuaçu and Bananeira, on the Mamoré; Borba, Rio Madeira).

No. 806. ♂ ad., Allianca, 29. xi. 1907.—Wing 74; tail (in moult); bill 13 mm.

No. 104. ♀ ad. (worn plumage), Calama, 25. vi. 1907.—Wing 69; tail 58; bill 12 mm.

"Iris brown, feet and bill black."

Specimens from the Canra Valley in the Munich Museum differ by their more sandy (less greyish) back, darker pileum, and slightly more yellowish (less greyish) under parts, but others from the same region in the Tring Museum are scarcely distinguishable from the typical Madeira birds.

In *O. littoralis* there is a marked difference in size between the sexes, the males being considerably larger.

Five adult males (Rio Madeira and Caura). Wing 73—75; tail 58—60½ mm.

Seven females " " " " " 66-70; " 54-58 "

86. *Fluvicola albiventer* (Spix).

Muscicopa albiventer Spix, Av. Bras. ii, p. 21. pl. xxx, fig. 1 (1825,—“in campis Brasiliae”: part. ♂)

No. 111. Juv. (not sexed), Calama, 26. vi. 1907. "Iris brown, feet and bill black."—Wing 64; tail 47; bill 14 mm.

Agrees with one of Spix's typical specimens in the Munich Museum, but is rather more blackish above, and has brownish white apical margins to the greater upper wing-coverts. The scapulars are blackish brown like the back; the rump is crossed by a narrow white band; the rectrices are uniform blackish without white apical edges, which are always well defined in the allied *F. pica* (Bodd.).

F. albirenter has a wide range in Brazil, Argentine, etc.

87. *Knipolegus pusillus* Sel. & Salv.

Chnipolegus pusillus Slater & Salvin, *Nomencl. Ar. Neotrop.* p. 158 (1873.—Amazonia inf., exact locality not known).

No. 551. ♂ ad., Jamarysiuho, R. Machados, 14. ix. 1907. "Iris dark brown, feet black, bill plumbeous."—Wing 59; tail 51; bill 12 mm. (Tring Musenm.)

Agrees with an example from Perico, Upper Orinoco (Cherrie coll.), which I had previously compared with the type in the British Museum. The small size and glossy black plumage together with the narrow, acuminate, three outer primaries distinguish this species among its congeners. It bears a striking likeness to *Xenopipo atronitens*, but on closer examination the two birds are seen to be quite distinct. *K. pusillus* has shorter wings, a much larger, differently coloured bill, numerous strong rictal bristles, etc.

The type, obtained by Wallace, remained unique until Cherrie obtained two

specimens near Perico, on the Orinoco.* Quite recently Miss Sneathlage shot a male at Alcobaga, on the left bank of the Tocantins,† this being the first ascertained locality within Brazilian limits.

[88. *Knipolegus sclateri* Hellm.

Knipolegus sclateri Hellmayr, *Nor. Zool.* xiii. p. 318 (1903).—Rio Madeira).

Knipolegus unicolor (nec Knip) Pelzeln, *l.c.* p. 99 (Rio Madeira).

The type was obtained by Natterer, November 18, 1829, on the Rio Madeira between Crato and Sapucaiarocca, but on which side of the river is not stated on the label. Pelzeln (*l.c.* note 1) also describes the female, which would appear to be very different from that of *K. orenocensis* Berl., the nearest ally of *K. sclateri*. Unfortunately it is no longer to be found in the Vienna Museum.]

89. *Muscisaxicola fluviatilis* Sel. & Salv.

Muscisaxicola fluviatilis Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1866. p. 187 (1866.—“in ripis fl. Ucayali inf.,” East Peru).

No. 919. ♂ ad., Marinius, Rio Machados, 9. vi. 1908. “Iris brown, feet black, bill blackish brown.”—Wing 77; tail 52; bill 13½ mm. (Munich Museum.)

[Vienna Museum: ♀ ad., Rio Madeira (below Crato), 14. xi. 1829 (Natterer coll.).—Wing 77; tail 51; bill 14½ mm.]

The two birds have the rufescent edges to the upper wing-coverts rather narrower, and the throat and chest more strongly washed with brownish buff, than Peruvian examples with which they otherwise agree. These slight differences may be seasonal or individual.

This is the first published record of *M. fluviatilis* from Brazil. Natterer had obtained, as long ago as 1829, a single female on the banks of the Rio Madeira, one day's journey below Crato, but the species was accidentally omitted in Pelzeln's work.

90. *Platyrinchus senex nattereri* Hart. & Hellm.

[*Platyrhynchus senex* Sclater & Salvin, *P. Z. S. London*. 1880. p. 156 (1880.—Sarayaçu, Eastern Ecuador).]

Platyrhynchus nattereri Hartert & Hellmayr, *Bull. B. O. C.* xii. p. 63 (April 1902.—Salto do Girao, Rio Madeira).

P. rostratus (not of Latham) Pelzeln, *Zur Ornith. Bras.* ii. 1868. p. 100 (part.: Salto do Girao).

No. 892. (♂) ad., Marinius, 31. v. 1908. “Iris dark brown, feet clear greyish brown, bill black, below pale grey.”—Wing 66; tail 36; bill 11 mm.

No. 281. ♂ imm., Calama, 28. vii. 1907. “Iris dark brown, feet whitish yellow, bill black, below grey.”—Wing 64; tail 34½; bill 11 mm.

[Mns. Vindob. No. 17680, “♀” imm. Salto do Girao, R. Madeira, 4. xi. 1829 (J. Natterer coll.). Type of *P. nattereri* Hart. & Hellm.—Wing 59; tail 30½; bill 11 mm.]

The specimens procured by Mr. Hoffmanns tend to show that most of the characters given in the original description are not constant. The type of *P. nattereri* is an immature bird, as I satisfied myself by careful re-examination.

The adult male (No. 892) has the top and sides of the head of the same deep slate-grey as a series of *P. griseiceps* from British Guiana, Surinam, and the Caura

* Berlepsch & Hartert, *Nor. Zool.* ix. 1902. p. 36.

† *Journ. f. Ornith.* 1908. p. 525.

Valley, Venezuela, and the throat pure white like adult birds of the form just mentioned. There is, however, one character which serves to distinguish readily the Madeira form from *P. s. griseiceps*, that is, the much paler and clearer, greenish olive-brown (instead of rufescent or deep russet-brown) colour of the back. The immature birds, the type from Salto do Girao and the ♂ from Calama, differ by having the throat and lores washed with pale sulphur-yellowish, the cap much paler slate-grey, tinged with olivaceous, the sides of the head clear olive-grey, the back decidedly lighter brown, and the belly paler ochraceous. The greater upper wing-coverts and the quills show narrow, rufescent apical margins.

The following condensed review of the geographical races of the *P. senex* group may be useful to students of the neotropical ornith.

(a) *Platyrinchus senex senex* Scl. & Salv.

Platyrinchus senex Selater & Salvin, *Proc. Zool. Soc. Lond.* 1880. p. 156 (Sarayaçu, Eastern Ecuador); Taczanowski, *P. Z. S. Lond.* 1882. p. 18 (Yurimaguas, N. Peru; descr. ♀ ad.); idem, *Orn. Pérou* ii. 1884. p. 224 (Yurimaguas); Selater, *Cat. Birds Brit. Mus.* xiv. 1888. p. 65 (Sarayaçu; Chamicuro, N. Peru).

Hab. Eastern Ecuador: Sarayaçu (Buckley). North Peru: Yurimaguas (Stolzmann), Chamicuro (Mus. Brit.).

Type locality: Sarayaçu, Eastern Ecuador.

Specimens examined:

			Wing.	Tail.	Bill.
1. Mus. Brit.	Adult (not sexed), Sarayaçu	} <i>Types of species</i>	62	32	12 mm.
2. " "	Av. imm. " " "		65	33	12½ "
3. " "	Adult " " Chamicuro		68	37	12 "

Adult. Top of the head slaty blackish with a half-concealed white coronal patch; back deep rufescent brown; * sides of the head very dark slate-grey. Throat white, rest of under surface deep ochraceous.

Obs. From the scanty material at hand it is difficult to say whether this form is really distinct from *P. s. griseiceps*. Nos. 2 and 3 have the cap decidedly darker, more blackish, than any specimens of the latter race, but No. 1 approaches it very closely in that respect. Other differences do not exist, for the colour of the back and belly, upon which Salvin, when describing *P. griseiceps*, laid much stress, proves to be variable. None of the specimens seen by me being sexed, I cannot say whether the sexes are alike or not, but probably the female has less white on the crown as is the case in the allied forms.

(b) *Platyrinchus senex griseiceps* Salv.

Platyrinchus griseiceps Salvin, *Bull. B. O. C.* no. xlviii. p. xv. (Nov. 1897.—"Aunai,† British Guiana"); Berlepsch & Hartert, *Nor. Zool.* ix. 1902. p. 37 (Caura, Venezuela).

P. rostratus (aec Latham) Pelzeln, *Zur Ornith. Bras.* ii. 1868. p. 100 (part.: Serra Carauman, Rio Branco).

P. senex (nec Selater & Salvin) Hartert & Hellmayr, *Bull. B. O. C.* xii. 1902. p. 64 (Serra Carauman).

Hab. British Guiana: Ourumee (H. Whitely, jun.). Surinam: near Paramaribo (Chunkoo). N.E. Brazil: Serra Carauman, on the Rio Branco (Natterer). East Venezuela, Caura Valley: Suapure (Klages), Nicare, La Pricion (E. André).

* The term "yellowish olive" used by Dr. Selater (*l.c.* p. 65) is altogether misleading.

† This is a mistake, the type being from Ourumee.

Type locality : Ourumee, British Guiana.

Specimens examined :

	Wing.	Tail.	Bill.
1. Mus. Brit. ♂ ad., Ourumee, Oct. 31, 1890.			
<i>Type of species</i>	63	35	12½ mm.
2. Mus. Brit. ♂ ad., Ourumee, Oct. 9, 1890	65	35	13 "
3. Mus. Brit. ♀ ad., Ourumee, Oct. 31, 1890	59	30½	13 "
4. Mus. Tring. ♀ ad., Ourumee, Sept. 29, 1890	58	30	12 "
5-9. Mus. Tring. ♂♂ ad., Surinam	60-65	30-35	12-13 "
10. Mus. Tring. ♂ imm., Surinam	64½	32	13 "
11, 12. Mus. Tring. ♀♀ ad., Surinam	61	32, 34	12 "
13-16. Mus. Tring. ♂♂ imm., Caura Valley, Venez.	61½-64	33-36	12-13 "
17. Mus. Monac. ♂ ad., Caura Valley, Venez.	63	37	12 "
18. Mus. Vindob. ♂ ad., Serra Caranman, Rio Branco, June 7, 1832	65	34½	12 "

Adult. Top of the head lighter than in *P. s. senex*, slate-grey, sides of the head also averaging paler grey. Males with a large white coronal patch, females without or with very little white. Back clear rufescent or russet-brown.

Obs. Nos. 1, 3, and 4 have the abdomen distinctly paler, sulphur-yellow, than the rest of the belly, which is bright ochraceous, while in a series from Venezuela and in the bird from the Rio Branco all the under surface (except the white throat) is uniform deep ochraceous (like *P. s. senex*). As, however, No. 2 (Ourumee) and the examples from Surinam agree with the Venezuelan ones, this slight difference must be purely individual. Notwithstanding our former affirmation (*Bull. B. O. C.* xii. p. 64), Natterer's male from the Rio Branco undoubtedly belongs to *P. s. griseiceps*; it is perfectly identical with some of the Caura specimens.

The colour of the back is rather variable in my series. Some examples (*e.g.* Nos. 1, 3, etc.) are indeed lighter than *P. s. senex*, but others (Nos. 4, 13-15) match them exactly, and No. 17 (Caura) is even darker and more rufescent brown.

(*c*) *Platyrinchus senex nattereri* Hart. & Hellm.

Hab. Central Brazil, Rio Madeira, east bank : Salto do Girao (Natterer), Calama (Hoffmanns), Marnius on the Rio Machados (Hoffmanns).

Type locality : Salto do Girao.

Specimens examined : *vide supra*.

Adult. Similar to *P. s. griseiceps* in having the head slate-grey, but differing by the much paler, greenish olive-brown colour of the back.

91. *Platyrinchus coronatus coronatus* Sel.

Platyrhynchus coronatus Selater, *Proc. Zool. Soc. Lond.* xxvi. 1858. p. 71 (1858.—Rio Napo, Eastern Ecuador).

P. c. coronatus Hellmayr, *Nov. Zool.* xiv. 1907. p. 354 (Humaytha, Paraiso).

Nos. 46, 161, 304, 456. ♂♂ ad., Calama, 15. vi., 3, 30. vii., 26. viii. 1907. "Iris brown, feet grey, bill black, below grey."—Wing 55-58½; tail 25-28; bill 12 mm.

No. 5. ♀ ad., Calama, 8. vi. 1907. Soft parts as above.—Wing 54; tail 24; bill 11½ mm.

Nos. 898, 924. ♂♂ ad., Marnius, 2, 12. vi. 1908.—Wing 54, 58; tail 25, 27; bill 11½ mm.

No. 891. ♂ imma., Marnius, 31. v. 1908.—Wing 54; tail 24; bill 11 mm.

The series fully corroborates what I have said about the distinguishing characters of *P. c. coronatus* and *P. c. superciliaris*. In addition to the differences mentioned *loc.*, the rufescent brown edges to the rectrices are another point that will serve to recognize the former race. The adult males have a large golden yellow coronal patch bordered laterally by a broad tawny stripe, whereas in the female and young male the whole pileum is tawny ochraceous. Cheeks and under parts are always maize-yellow, with a buffy brown wash on chest and sides.

92. *Todirostrum maculatum signatum* Scl. & Salv.

[*Todus maculatus* Desmarest, *Hist. Nat. Tangaras*, etc., pl. 70 (1805,—"Guiane," sc. Cayenne).]
Todirostrum signatum Sclater & Salvin, *Ibis* 1881. p. 267 (1881.—N.E. Peru).

Nos. 102, 147. Adult, juv., Calama, 24. vi., 2. vii. 1907.—Wing 45, 43½; tail 35, 32; bill 14, 12 mm.

No. 848. ♂ ad, Marmellos, 22. xii. 1907.—Wing 47; tail 35; bill 14 mm.

"Iris yellow (brown in No. 147, juv.), feet plumbeous, bill black, below grey."

The adult birds agree perfectly with several topotypical specimens from North-Eastern Peru (Nanta). A series from the Rio Napo (Wiener coll., Paris Museum), the examples obtained by Natterer on the Rio Negro and Rio Branco,* as well as skins from Tefé, Rio Jurná, and Itaituba, west bank of Tapajóz, belong likewise to the same race. All of these many specimens differ from a good series of true *T. m. maculatum*, from Cayenne, Surinam, and British Guiana, by having the feathers of the forehead and vertex clear slate-grey with small dusky discs, and mostly with narrow white lateral edges; while in the typical form, the front and forepart of the crown are distinctly black, with the white edges more pronounced.

T. m. signatum has a much wider range than was hitherto supposed. In fact all the specimens I have seen except the Guianan ones proved to belong to this race. I have examined examples from the following localities: Nanta (4), Iquitos (1), Rio Napo (5), Tefé (1), Rio Madeira (3), Itaituba (1),† Rio Jurná (1); Rio Negro: Barcellos (4), Carvoeiro (3), Forte do Rio Branco (1).

T. m. maculatum (Desm.) is evidently confined to the coast district of Cayenne, Surinam, and British Guiana (Bartica Grove). It may, however, be that the birds from Pará, Mexiana, Tocantins, and Santarem are also referable to the typical race, but as yet I have not seen skins from any of these localities.

93. *Todirostrum chrysocrotaphum* Strickl.

Todirostrum chrysocrotaphum Strickland in *Contrib. to Ornith.* 1850, *Illustr. Ornith.* p. 48, pl. (49). fig. sup. (1850.—Peru).

No. 830. ♂ imm., Marmellos, 19. xii. 1907. "Iris dark brown, feet plumbeous, bill black, below dark grey."—Wing 40½; tail 30; bill 12½ mm.

Identical with a Bolivian specimen, except that the hind-crown is slightly washed with greenish olive, and the auricular patch blackish olive instead of deep black, both apparent signs of immaturity.

New to the fauna of Brazil.

* *T. maculatum* Pelzeln, *Zur Orn. Bras.* ii, p. 101.

† Miss Snethlage (*Journ. f. Orn.* 1908. p. 501) erroneously refers the Tapajóz birds to *T. maculatum*. Cf. my remarks in *Nov. Zool.* xiv. 1907. p. 11.

T. illigeri Cab. & Heine,* synonymized with *T. chrysocrotaphum* by Dr. Selater, is evidently quite a good form, differing by its white throat and by the possession of a distinct black monstachial stripe. I have examined the type in the Berlin Museum.

[94. *Todirostrum senex* (Pelz.).

Euscarthmus senex Pelzeln, *Zur Ornith. Bras.* ii. p. 173 (1869.—Borba).

Right bank : Borba (Natterer).

The type specimen, an adult male, obtained by Natterer in June 1830, is still unique in the Vienna Museum. Thanks to the kindness of Dr. von Lorenz, I have been enabled to examine it, and have come to the conclusion that it is more correctly placed in the genus *Todirostrum*. The bill has very nearly the same shape as that of *T. fumifrons* Hartl., but is somewhat shorter. In the species of *Euscarthmus*, on the other hand, the bill is much longer, as well as strongly attenuated for its terminal portion. In coloration, *T. senex* is perhaps nearest to *T. schistaceiceps*,—presents, however, many points of distinction. The back is much darker and duller green (instead of bright yellowish green); the markings of the wing-coverts and inner secondaries are much paler, whitish yellow (not deep olive-yellow); the cheeks, ocular and auricular regions clear isabelle (instead of dark slate-grey); the throat and foreneck white with distinct, though narrow, brownish shaft-streaks; on the top of the head the slate-grey is confined to the forehead and occiput, while the hind-crown and nape are green like the back, etc., etc. Moreover, the bill and tail are much shorter.

The type measures : wing 48; tail 34; bill 12 mm.]

[95. *Todirostrum latirostre* (Pelz.).

Euscarthmus latirostris Pelzeln, *Zur Orn. Bras.* ii. p. 173 (1868.—Borba); cf. Hellmayr, *Nor. Zool.* xiv. p. 47 (crit.).

Right bank : Borba (Natterer). Rather widely distributed in Upper Amazonia.]

96. *Euscarthmus striaticollis striaticollis* (Laf.).

Todirostrum striaticolle Lafresnaye, *Rev. Mag. Zool.* (2). v. p. 58 (1853.—Bahia).

Euscarthmus striaticollis Pelzeln, *l.c.* p. 101 (Mattogrosso, Rio Guaporé).

Nos. 641, 683. ♂ (?) ♀ ad., S. Isabel, Rio Preto, S, 11. x. 1907.—Wing 50½, 49; tail —; bill 13 mm.

“ Iris yellow, feet brown, bill black.”

Agrees with the Araguaya specimen (*Nor. Zool.* xv. 1908. p. 42) in the dull green colour of the upper parts, and in having only the anterior part of the pileum mouse-brown, but the belly is clearer yellow with barely any greenish shade on the chest.

This is not the first record of the species from Amazonia, for Chapman† has already listed a specimen from Santarem. Count Berlepsch possesses a skin obtained by Dr. Hahnel on the Lower Amazons, but the exact locality is not indicated.

E. striaticollis, *E. iohannis*, and *E. zosterops* form a natural group, repre-

* *Mus. Heinan.* ii. p. 49 (1859.—“Para,” type in Berlin Museum, No. 2869).

† *Auk*, 1890, p. 270.

senting each other geographically. In structural details—shape of the nostrils, wing-formula, and form of the tail—they are practically identical, and differ only in slight colour characters.

(a) *E. striaticollis striaticollis* (Lafr.).

Central and Eastern Brazil: Bahia (many specimens in various collections examined); Goyaz: Rio Aragnaya (Natterer, Baer); Mattogrosso: Chapada (Smith), Villa Maria, Villa Bella de Mattogrosso (Natterer); S. Isabel, Rio Madeira (Hoffmanns); Santarem, Rio Tapajóz (Smith).

Characters. Crown, at least anterior part, mouse-brown, more or less contrasting with the green of the back. Nasal feathers and lores white. Cheeks and ear-coverts pale brown. Throat white and, like the chest, very distinctly streaked with blackish; breast and abdomen bright yellow, flanks and sometimes chest also shaded with greenish. Upper wing-coverts dusky edged with the colour of the back. Wing: ♂♂ 53—55, ♀♀ 48—50; tail: ♂♂ 44—45, ♀♀ 37—40 mm.

Examined. 1 ♂ ad., Villa Bella de Mattogrosso; 2 ♂♂ ad., Rio Aragnaya, Goyaz; 1 ♂, 1 ♀, S. Isabel, Rio Madeira; 9 ad. and juv., Bahia; 1 (♀) ad., Lower Amazons (Hahnel).

(b) *E. striaticollis iohannis* Snethlage.

Euscarthmus iohannis Snethlage, *Orn. Monber.* xv. p. 193 (1907.—Monte Verde, Rio Purús).
E. zosterops (nec Pelzeln) Snethlage, *Journ. f. Orn.* 1908. p. 12 (Monte Verde, Rio Purús).

Hab. W. Brazil: Monte Verde, on the Rio Purús.

Characters. Differs from the preceding form by its rusty buff (not white) lores and eyelid, paler brown legs, and by having the whole pileum (from the forehead to the nape) uniform green like the back. The edges to the upper wing-coverts are slightly more yellowish green, the axillaries deeper yellow than in *E. s. striaticollis*. Under parts exactly as in the latter: throat white with conspicuous blackish streaks, breast and abdomen bright yellow, chest slightly washed with greenish.

Type of species: Pará Museum, No. 3539. ♂ ad., Rio Purús (Monte Verde), February 20, 1904.—Wing 55; tail 43; bill 12 mm.

N.B.—By mistake the type was recorded s.n. *E. zosterops* in Miss Snethlage's report on the Purús collections.

(c) *E. striaticollis zosterops* Pelz.

Euscarthmus zosterops Pelzeln, *Zur Orn. Bras.* ii. p. 173 (1868.—part.: descr. et hab. Marabitanas; cf. *Noe. Zool.* xiv. 1907 pp. 355-6); (?) Salvadori & Festa, *Boll. Mus. Torino* xiv. no. 362. p. 5 (1899.—Rio Santiago, Eastern Ecuador).

Hab. N.W. Brazil: Marabitanas and San Carlos,* upper Rio Negro (Natterer). (?) Eastern Ecuador: Rio Santiago (Festa).

Characters. Upper parts much duller green than in *E. s. striaticollis* and *E. s. iohannis*, frontal edge slightly mixed with ashy. Lores and eyelid dull white, cheeks and ear-coverts ashy, faintly tinged with olive posteriorly. Median and greater upper wing-coverts dusky, each feather with a well-defined, pale yellow apical spot, forming two distinct wing-bands. Under parts pale, "primrose-yellow" (Ridgw., *Nomencl.* vi. fig. 13), chin nearly whitish; throat obsoletely

* San Carlos, though not mentioned on p. 173, is included among the localities given under the heading of the species in the general list (p. 102 of Pelzeln's work).

striated with pale greyish, chest faintly flammulated with the same. Axillaries pale yellow.

Vienna Museum, No. 17738. ♂ ad., Marabitanas, March 13, 1831. *Type of species*.—Wing 52; tail 48; bill 11 mm.

Vienna Museum, No. 17739. ♂ ad., Rio Negro, below S. Carlos, February 14, 1831.—Wing 51; tail 48; bill 12 mm.

N.B.—I have not seen specimens from Eastern Ecuador. In Peru a nearly allied, but sufficiently distinct, form is met with. There are three examples of it in the Paris Museum, obtained by Comte de Castelnau. It will shortly be described in another connection.

97. *Snethlagea minor* (Snethlage).

Euscarthmus zosterops minor Snethlage, *Orn. Monber.* xv. p. 193 (1907.—Arumathena, R. Tocantins); *Journ. f. Orn.* 1908. p. 525.

E. zosterops (nec Pelzel) Pelzel, *Zur Orn. Bras.* ii. 1868. p. 102 (part.: Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 355 (Borba); Snethlage, *Journ. f. Orn.* 1908. p. 501 (Villa Braga, Tapajóz).

Nos. 269, 317. ♂ ad., ♂ juv., Calama, 25. vii., 1. viii. 1907.—Wing 51, 52; tail 39½, 42; bill 10 mm.

No. 761. (♀) Allianca, 8. xi. 1907.—Wing 43; tail 35; bill 10½ mm.

No. 902. ♂ ad., Marnins, 3. vi. 1908.—Wing 52; tail 39; bill 10¾ mm. (Mus. Munich.)

[No. 1459. ♂ ad., Borba, 11. xii. 1906.—Wing 50½; tail 38; bill 11 mm. (*E. zosterops* apud Hellm., *Nov. Zool.* xiv. p. 355).

No. 1334. ♀ ad., Borba, 14. xi. 1906.—Wing 46; tail 34; bill 11 mm. (*E. zosterops* apud Hellm., *Nov. Zool.* xiv. p. 355).

Vienna Museum, No. 17740. ♀ ad., Borba, 23. vi. 1830 (Natterer coll.).—Wing 45; tail 33; bill 10 mm.

Pará Museum, No. 5401. ♂ ad., Arumathena, Tocantins, 26. iv. 1907 (Snethlage coll.). *Type of species*.—Wing 48; tail 41; bill 11 mm.

Pará Museum, No. 5400. ♀ ad., Arumathena, 25. iv. 1907.—Wing 43; tail 32; bill 10½ mm.]

“Iris pale yellow, feet grey, bill blackish grey.”

Count Berlepsch has pointed out that the *E. zosterops minor* of Snethlage is quite distinct from the true *E. zosterops* Pelz., and accordingly proposed the new generic term *Snethlagea* for it.* Besides the above-mentioned specimens I have examined, in the British Museum, the adult male from Borba, obtained by Natterer February 12, 1830, and described by Mr. P. L. Selater s.n. *E. zosterops*,† and found them all to belong to the present species. *S. minor*, though resembling *Euscarthmus zosterops* in general coloration, differs by the singular shape of the nostrils, which are very large, nearly circular, and quite exposed, and by the strongly rounded tail, in which the central rectrices are longest, being about 5 mm. longer than the outermost. In *E. zosterops*, on the other hand, the nostrils are situated in an operculate fossa, with the narrow, slit-like nasal opening near its lower edge; the tail is also strongly rounded, but at the same time distinctly emarginate, the central rectrices being slightly shorter than the submedian ones.

Adult males of *S. minor* have the rectal bristles exceedingly well developed, reaching nearly to the tip of the bill. In coloration the specimens from the

* Berlepsch, *Journ. f. Orn.* 1909. p. 101 (Type: *Euscarthmus zosterops minor* Snethl.).

† Selater, *Cat. B. Brit. Mus.* xiv. 1888. p. 79 (Borba).

Rio Madeira agree perfectly with those from the Tocantins. The ♂ ad. from Maruins has the middle of the abdomen whitish, exactly like the type (No. 5401 Pará Museum). Miss Suetlidge (in litt.) informs me that the skin from Villa Braga, recorded s.n. *E. zosterops*, is likewise referable to *S. minor*.

S. minor is at yet only known from the Rio Madeira, Tapajóz, and Tocantins.

98. *Orchilus ecaudatus* (Lafr. & D'Orb.).

Todirostrum ecaudatum Lafresnaye & D'Orbigny, *Syn. Av. i.* in *Mag. Zool.* cl. ii. p. 47 (1837. — Yuracares, Eastern Bolivia).

Orchilus ecaudatus Pelzeln, *l.c.* p. 102 (Salto do Girao).

Nos. 53, 315, 392. ♂♂ ad., Calama, 17. vi., 1, 15. viii. 1907.—Wing 33—34½; tail 13½—15; bill 9½—10 mm.

No. 635. ♀ ad., S. Isabel, Rio Preto, 7. x. 1907.—Wing 33; tail 13; bill 9 mm.

"Iris brown, feet greyish yellow, bill black."

This curious bird is widely distributed all over South America, east of the Andes, from Trinidad and Venezuela down to Northern Bolivia.

[99. *Stigmatura budytoides budytoides* (Lafr. & D'Orb.).

Calicicora budytoides Lafresnaye & D'Orbigny, *Syn. Av. i.* in *Mag. Zool.* cl. ii. p. 56 (1837.—Valle Grande, Bolivia).

Stigmatura budytoides Pelzeln, *l.c.* p. 104 (Barra do Rio Jamary, Rio Madeira).

Mouth of the Rio Jamary (Natterer).

Natterer's specimens agree with others from Bolivia. Mr. Hoffmanns obtained it also at Urucurituba, left bank of the Tapajóz.*

In Argentine it is represented by the nearly allied *S. budytoides flavocinerea* (Burm.).†]

100. *Mionectes oleagineus oleagineus* (Licht.).

Muscicapa oleaginea Lichtenstein, *Verz. Dubl. Berliner Mus.* p. 55 (1823.—Bahia).

Mionectes oleagineus Pelzeln, *l.c.* p. 104 (Borba); Hellmayr, *Nov. Zool.* xiv. p. 356 (Humaytha).

Nos. 144, 374, 457. ♂♂ ad., Calama, 3. vii., 12, 26. viii. 1907.—Wing 60—63; tail 49—50½; bill 11 mm.

No. 143. ♀ ad., Calama, 1. vii. 1907.—Wing 57½; tail 46; bill 10½ mm.

No. 563. ♂ imm., Jamarysinho, 17. ix. 1907.—Wing 64; tail 50; bill 11 mm.

"Iris brown, feet and bill grey or greyish brown."

Identical with specimens from Bahia and Bogotá collections.

[101. *Tyrannulus elatus* (Lath.).

Sylvia elata Latham, *Inl. Ornith.* ii. p. 549 (1790.—based on D'Aubenton, Pl. enl. 708. fig. 2: Cayenne).

Tyrannulus elatus Pelzeln, *l.c.* p. 106 (Borba).

Right bank: Borba (Natterer).

The specimens from Borba, as well as those from other Amazonian localities,

* Cf. *Nov. Zool.* xiv. p. 11.

† *Phylloscartes flavo-cinereus* Burneister, *Reise La Plata Staat.* ii. p. 455 (1861.—Mendoza, Sierra de Uspallata).

are perfectly similar to Cayenne skins. Cf. my remarks in *Abhandl. Bayer. Akad. Wissensch. II. Cl.* vol. xxii. 3. pp. 640-41.

T. elatus is widely distributed in Amazonia.]

102. *Tyranniscus gracilipes* Sel. & Salv.

Tyranniscus gracilipes Selater & Salvin, *Proc. Zool. Soc. Lond.* 1837. p. 981 (1868.—Pebas, N.E. Peru).

No. 658. ♂ ad., S. Isabel, Rio Preto, 9. x. 1907.—Wing 48; tail 42; bill $8\frac{3}{4}$ mm.

No. 638. ♀ imm., S. Isabel, 7. x. 1907.—Wing 44; tail 37; bill 8 mm.

No. 1040. ♀ ad., Maruins, Rio Machados, 21. vii. 1908.—Wing 45; tail 38; bill 8 mm.

“Iris yellow, feet and bill black.”

The three skins are very uniform *inter se*. The back is bright grass-green, the bill large and somewhat blunt. An adult bird from Salinas, Beni, Eastern Bolivia, in the Tring Museum, has the under parts, including the throat, of a much deeper olive-yellow, the ear-coverts brighter yellowish olive-green, and the bill decidedly longer. A series from the Roraima Mts. (British Guiana) and the upper Rio Negro (R. Icanna, Barcellos, Marabitanas)* differ from the preceding ones by their much duller, olive-green back, and much narrower, slenderer bill. An apparently immature female from Maipures (Orinoco R.), however, agrees perfectly with Mr. Hoffmannus' examples. The type from Pebas (in the British Museum) should be re-examined in order to ascertain the exact application of the name *gracilipes*.

103. *Elaenia flavogaster spectabilis* Pelz.

[*Pipra flavogaster* Thunberg, *Mém. Acad. St. Pétersbg.* viii. p. 286 (1822.—Brazil; cf. Lönnberg, *Ibis* 1903. p. 241).]

Elaenia spectabilis Pelzel, *Zur Ornith. Bras.* ii. p. 176 (1868.—Goiáz †); Berlepsch & Leverkühn, *Ornis* vi. 1890. p. 13 (Araguaya, Goiás, Jaragua, Maria Rosa: state of Goyaz); Berlepsch, *l.c.* xiv. 1907. p. 389.

No. 482. Adult, Calama, 29. viii. 1907. “Iris dark brown, feet and bill black.”—Wing 88; tail 77; bill $12\frac{1}{2}$ mm.

No. 441. Av. junior in moult, Calama, 23. viii. 1907. “Iris greyish brown, feet black, bill grey.”—Bill 12 mm.

The adult bird (No. 482) agrees with Natterer's type † in every respect. Both have a little white at the extreme base of some of the crest feathers. It differs, however, from the two specimens in the Vienna Museum and another adult ♂ from Araguaya, Goyaz, in Mus. Berlepsch by its rather lighter, more greenish upper surface; this trifling variation is very likely individual. As correctly pointed out by Berlepsch & Leverkühn, *E. f. spectabilis* may be readily distinguished from *E. f. flavogaster* (= *pagana* auct.) by its much larger size and much stronger as well as longer bill. In seven specimens (five from Goyaz, one each from Calama and Barcellos, Rio Negro) the wing measures from 88 to 92, the tail from 79 to 85 mm.

* “*Myiopatis pusilla* (?)” Pelzel, *Zur Orn. Bras.* ii. 1868. p. 106 (part.).

† Although Pelzel (*l.c.* p. 176) says that Natterer sent only a single male of this species, the Vienna Museum possesses two specimens from Natterer's travels: an adult male taken at the city of Goyaz August 16, 1823, which is to be considered as the type, and an adult male obtained at Barcellos, Rio Negro, August 31, 1831. The latter locality alone is mentioned in the systematic list of Pelzel's book (p. 107).

104. *Elaenia parvirostris* Pelz.

Elaenia parvirostris Pelzeln, *Zur Ornith. Bras.* ii. pp. 107, 178 (1868.—Curytiba (*type*); Borba, Rio Madeira; Barcellos, R. Negro).

No. 1046. ♂ ad., Maruins, Rio Machados, 21. vii. 1908. "Iris and feet black, bill black, lower mandible flesh-colour."—Wing 78; tail 68; bill 10 mm.

Larger than any other specimen I have seen, but in coloration typical of *E. parvirostris*. This species has a wide range, being found from Southern Brazil northwards to British Guiana, Venezuela, and Eastern Colombia (Bogotá coll.).

[105. *Elaenia ruficeps* Pelz.

Elaenia ruficeps Pelzeln, *Zur Orn. Bras.* ii. pp. 108, 179 (1868.—Borba).

Right bank: Borba (Natterer).

This species is also recorded from Southern French Guiana (Oyapoc), and from the Merumé Hills, in British Guiana; but specimens from these places require careful comparison with the type in the Vienna Museum.]

[106. *Elaenia gaimardii gaimardii* (D'Orb.).

Muscicapara Gaimardii D'Orbigny, *Voyage, Oiseaux*, p. 326 (between 1838—1847.—Yuracarès, East Bolivia).

Elaenia elegans Pelzeln, *l.c.* pp. 107, 179 (Engenho do Gama, Mattogrosso; Borba, etc.).

Right bank: Borba (Natterer).

Specimens from the Rio Madeira district agree with one of D'Orbigny's typical examples for the loan of which I am indebted to my friend M. Ménégau, of the Paris Museum.]

[106A. *Elaenia flavivertex* Scf.

Elaenia flavivertex Scclater, *Proc. Zool. Soc. Lond.* 1887. p. 49 (1887.—Upper Ucayali, Eastern Peru).

E. implacens (nec Scclater) Pelzeln, *Zur Orn. Bras.* ii. p. 108 (part: Borba).

Right bank: Borba (Natterer).

A single young male, partly in nestling plumage, was obtained by Natterer February 7, 1830.—Wing 58; tail 50; bill 10 mm.

Although young, it unquestionably belongs to the present species. This is clearly indicated by the dull olive-green back, the short tail, the broad bill, and particularly by the newly grown greater upper wing-coverts being distinctly tipped with light yellow. Count Berlepsch agrees to my identification. *E. flavivertex* is new to the Brazilian fauna. Hitherto it had been recorded from Eastern Peru (Upper Ucayali, Elvira, Nauta), Venezuela (Munduapo, Upper Orinoco), and French Guiana (Roche-Marie).]

107. *Legatus albicollis albicollis* (Vieill.).

Tyrannus albicollis Vieillot, *Noir. Dict.* xxxv. p. 89 (1819.—ex Azara: Paraguay).

No. 474. ♂ ad., Calama, 28. viii. 1907.—Wing 78½; tail 59; bill 11½ mm.

No. 883. ♂ ad., Fall 2d Novembro, Rio Machados: 13. i. 1908.—Wing 79; tail 59; bill 12 mm.

Identical with examples from South Brazil and Bahia.

[108. *Myiozetetes similis similis* (Spix).

Muscicapa similis Spix, *Av. Bras.* ii. p. 18. pl. xxv. (1825.—“ad flumen Amazonum”; cf. *Abhandl. Bayer. Akad. Wissensch. II. Cl.* vol. xxii. 3. p. 649).

Myiozetetes columbianus (nec Cabanis & Heine) Pelzeln, *l.c.* p. 109 (part : Rio Madeira).

Rio Madeira below São João do Crato (Natterer).

This bird, an adult female, obtained November 14, 1829, is indistinguishable from Bahia and São Paulo examples.]

[109. *Myiozetetes luteiventris* (Scl.).

Elaenia luteiventris Sclater, *Proc. Zool. Soc. Lond.* xxvi. 1858. p. 71 (1858.—Rio Napo, East Ecuador).

Myiozetetes luteiventris Pelzeln, *l.c.* p. 109 (Borba).

Right bank : Borba (Natterer).

The two specimens, ♂ ad., ♀, in the Vienna Museum are slightly smaller (wing 78, 70; tail 66, 62 mm.) than two adult males from the Rio Napo, resp. Juruá (wing 82; tail 70—71 mm.), but the difference should be confirmed by larger series.]

110. *Ramphotrigon ruficauda* (Spix).

Platyrrhynchus ruficauda Spix, *Av. Bras.* ii. p. 9. pl. xi. fig. 1 (1825.—“in sylvis fl. Amazonum”).

Rhynchochelys ruficauda Pelzeln, *Zur Orn. Bras.* ii. p. 110 (Borba).

Ramphotrigon ruficauda Hellmayr, *Nov. Zool.* xiv. p. 356 (Humaytha).

Nos. 154, 465. ♂ ad., ♂ imm., Calama, 21. vii., 27. viii. 1907.—Wing 76, 78 tail 70½, 73; bill 15 mm.

No. 1031. ♂ ad., Maruins, 18. vii. 1908.—Wing 77; tail 70; bill 16 mm.

Nos. 908, 1032. ♀ ♀ ad., Maruins, 5. vi., 18. vii. 1908.—Wing 72, 74; tail 66, 67; bill 14, 15 mm.

Practically identical with the types in the Munich Museum. As will be seen from the above measurements, the males are decidedly larger than the females.

111. *Craspedoprion olivaceus* (Temm.).

Platyrrhynchus olivaceus Temminck, *Pl. col.* livr. 2. pl. 12. fig. 1 (1820.—Brésil”; we fix Bahia as type locality).

No. 857. ♀ imm., Marmellos, 24. xii. 1907.—Wing 66; tail 56 mm.

“Iris blackish brown, feet plumbeous, bill black, below greyish red.”

Agrees in coloration with specimens from Pará and Cayenne, but is smaller, and paler greenish on throat, foreneck, and flanks. These slight differences are most probably due to its being immature. Typical East Brazilian (Bahia, Rio) skins have the fulvous edges to the upper wing-coverts rather broader and deeper in tint (cf. *Nov. Zool.* xiii. p. 361). *C. olivaceus* is new to the fauna of the Madeira district.

112. *Rhynchochelys flaviventris borbae* Hellm.

[*Muscipeta flaviventris* Wied, *Beitr. Naturg. Bras.* 3. ii. p. 929 (1831.—Mocuri and Alcobaça, Southern Bahia, E. Brazil).]

Rhynchochelys flaviventer borbae Hellmayr, *Verhandl. Zool. Bot. Gesellsch. Wien* liii. p. 208 (1903.—Borba, Rio Madeira).

R. flaviventer Pelzeln, *Zur Orn. Bras.* ii. p. 110 (Borba).

R. viridiceps (nec Sclater & Salvin) Sneathlage, *Journ. f. Orn.* 1908. p. 12 (Monte Verde, Rio Pnrús).

No. 853. Adult (not sexed), Marmellos, 22. xii. 1907. “Iris brownish grey, feet plumbeous, bill black, below grey.”—Wing 55; tail 48; bill 11¾ mm.

[Mus. Goeldi (Pará), No. 3540. ♀, Monte Verde, Rio Purús, 25. vi. 1904.—Wing 57½; tail 48; bill 11 mm.]

The two specimens agree with the typical series from Borba in the coloration of the lower parts and in the olive-yellow loreal streak, but differ by their decidedly brighter, pure grass-green (instead of yellowish green) upper surface. In this respect they approach *R. f. viridiceps** from North Peru (Pebas) and Eastern Ecuador (Napo). The latter, however, has the throat and chest distinctly light green like the sides, not clear olive-yellow as *R. f. borbae*. From both forms, *R. f. flaviventris*, of Eastern Brazil, etc., differs by having the lower parts, especially the throat and chest, much deeper, gamboge-yellow; the loreal streak more clearly defined, rusty yellow or orange; and the upper wing-coverts more conspicuously edged with clear yellow.

Characters and range of the three races are as follows:—

(a) *R. flaviventris flaviventris* (Wied).

Hab. Eastern Brazil: Southern Bahia (Alcobaça, Mucuri), Goyaz (Rio Aragnaya), Tocantins (Arumathena), Tapajóz (Goyana).† N.E. Brazil: Forte do Rio Branco (Natterer). British Guiana, Venezuela, Trinidad, Tobago. North Colombia (Santa Marta).

Adult. Upper parts bright yellowish green; median and greater upper wing-coverts with well-defined, broad edges of deep olive-yellow. Lores and eyelid deep rusty yellow or dull orange, conspicuously contrasted with the green of the crown and yellowish green of the cheeks, etc. Under parts deep gamboge-yellow, throat and chest often tinged with dull ochraceous.

Wing 55—62; tail 47—55 mm.

Examined fifty-one specimens from Brazil, Brit. Guiana, Venezuela, Tobago, etc. Specimens from the Tapajóz and Tocantins Rivers are clearly referable to *R. f. flaviventris*, though some of them slightly point towards *R. f. borbae*. I am indebted to Miss Sneathlage for the loan of the series contained in the Pará Museum.

(b) *R. flaviventris borbae* Hellm.

Hab. W. Brazil: Borba, Marmellos, on the Rio Madeira (Natterer, Hoffmanns); Monte Verde, Rio Purús (Mus. Goeldi).

Adult. Upper parts less yellowish green, sometimes (in Marmellos and Purús examples) even pure grass-green. Median wing-coverts edged with green, like the back; greater ones with narrow, ill-defined, greenish yellow margins. Narrow loreal streak dull olive-yellow, rarely distinctly rusty yellow (in two from Borba). Under parts pale olive-yellow, slightly darker on throat and chest.

Wing 55—59; tail 47—50 mm.

Examined: five adults from Borba, including the types; one each from Marmellos and Monte Verde, Purús.

(c) *R. flaviventris viridiceps* Sel. & Salv.

Hab. North Peru: Pebas (Haunxwell; type). Eastern Ecuador: Rio Napo (Petit). [Central Peru: La Merced, Chanchamayo (Kalinowski).]

Adult. Loreal streak and upper wing-coverts as in *R. f. borbae*, but upper parts

* *R. viridiceps* Selater & Salvin, *Proc. Zool. Soc. Lond.* 1873, p. 280 (Pebas, N. Peru).

† Sneathlage, *Journ. f. Orn.* 1908, pp. 503, 527.

of a rather purer grass-green; throat, chest, and sides decidedly washed with greenish.

Wing 56, $58\frac{1}{2}$; tail 45, $47\frac{1}{2}$ mm.

Examined: one ♂ ad. from Pebas (type) in the British Museum; one adult, Rio Napo, in the Tring, and two adult males, La Merced, C. Peru, in the Branicki Museum.

Obs. The two last-named skins are larger (wing $60\frac{1}{2}$, $63\frac{1}{2}$; tail $49\frac{1}{2}$, 53 mm.), and may again be different. The Napo bird is practically identical with the type.

113. *Rhynchoicyclus sulphureus assimilis* Pelz.

[*Platyrrhynchus sulphureus* Spix, *Ar. Bras.* ii. p. 10. pl. xii. fig. 1 ("♂") (1825.—Rio do Janeiro, etc.).]

Rhynchoicyclus assimilis Pelzeln, *Zur Ornith. Bras.* ii. pp. 110, 181 (1868.—Engenho do Gama, Rio Guaporé; Borba, Rio Madeira; Rio Negro, Barra (= Manaus).*)

Nos. 98, 354. ♂♂ ad., Calama, 23. vi., 8. viii. 1907.—Wing 70, 71; tail 57, 60; bill 13 mm.

Nos. 217, 332. ♀♀ ad., Calama, 13. vii., 5. viii. 1907.—Wing 63, 64; tail 50, 51; bill 12 mm.

No. 185. juv., Calama, 7. vii. 1907.—Wing 61; tail 49; bill 12 mm.

Nos. 930, 1045. ♂♂ ad., Marauis, 14. vi., 21. vii. 1908.—Wing 68, 69; tail 56; bill 13 mm.

"Iris brown, feet and bill black, lower mandible greyish."

The series agrees with Natterer's typical specimens in the Vienna Museum. *R. s. assimilis*, from the Rio Negro and the Madeira district, differs from *R. s. sulphureus*, of South-Eastern Brazil, by its much duller, less yellowish green back, and by having the pileum nearly uniform slate-grey, with scarcely any greenish admixture. The other characters—viz. smaller size, paler yellow wing-markings and under parts, etc.—however, do not hold good.

Examples from Northern Peru (Huambo, Xeberos, Chamicuro) agree with *assimilis* in the coloration of the cap, but the back is bright olive-green, even brighter than in *sulphureus*. I take them to belong to *R. sulphureus peruvianus* Tacz.,† though I have not yet examined skins from the type locality.

114. *Rhynchoicyclus poliocephalus sclateri* Hellm.

Rhynchoicyclus poliocephalus sclateri Hellmayr, *Verhandl. Zool. Bot. Gesellsch. Wien* liii. p. 207 (1903.—Barra do Rio Negro).

No. 396. ♀ ad. (in worn plumage), Calama, 15. viii. 1907.—"Iris yellowish grey, feet and bill black."—Wing 54; tail —; bill 11 mm.

Agreeing with the type and other specimens from Guiana, Bahia, Rio Negro, etc. This is the *R. megacephalus* of Sclater & Salvin, but not of Swainson,‡ as I have pointed out in another paper.§ It is closely allied to *R. poliocephalus* Tacz., from Upper Amazonia, in fact its eastern representative. In the following lines I give a short summary of their characters and geographical distribution, together with the principal synonymy:—

* There are no specimens from S. Vicente, also mentioned by Pelzeln, in the Vienna Museum.

† *Rhynchoicyclus peruvianus* Taczanowski, *Proc. Zool. Soc. Lond.* 1871. p. 537 (Ropaybamba, Centra Peru).

‡ *Tyrannula megacephala* Swainson, *Birds Brazil* pl. 47.

§ *Verhandl. Zool. Bot. Gesellsch. Wien* liii. 1903. pp. 205-7.

(a) *R. poliocephalus poliocephalus* Tacz.

Rhyhocyclus poliocephalus Taczanowski, *Orn. Pérou* ii. p. 235 (1884.—Nauta, N.E. Peru; type in Mus. H. v. Berlepsch); Sclater, *Cat. Birds Brit. Mus.* xiv. p. 171 (part.).

R. megacephalus (nec Swainson) Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1866. p. 189 (Upper Ucayali: vidi); iidem, *l.c.* 1867. p. 751 (Xeberos: vidi); iidem, *l.c.* 1867. p. 978 (Pebas); iidem, *l.c.* 1873. p. 280 (E. Peru); iidem, *l.c.* 1873. p. 185 (Cosnipata, S.E. Peru); Taczanowski, *l.c.* 1882. p. 20 (Yurimaguas); idem, *Orn. Pérou* ii. 1884. p. 283 (part.: Peru).

R. poliocephalus poliocephalus Hellmayr, *Nor. Zool.* xiv. 1907. p. 48 (Teffé).

Hab. N.W. Brazil: Teffé, Rio Solimões (Hoffmanns). North-Eastern Peru: Upper Ucayali, Xeberos (Bartlett), Yurimaguas (Stolzmann), Pebas, Nanta (Hauxwell). S.E. Peru: Cosnipata (Whitely). Eastern Ecuador: Napo (spec. in Mus. H. v. B.).

Characters. The slate-grey cap decidedly mixed with olive-green, back brighter green. Lower parts rather bright yellow, throat scarcely paler than the rest.—Wing (♂) 56—58, (♀) 52—55; tail (♂) 47, (♀) 42—45 mm.

Examined: 1 adult, Nanta (type); 1 ♀ ad., East Ecuador, in Mus. H. v. B.; 1 ♂ ad., Upper Ucayali, July 7, 1865; 1 ♂ ad., Xeberos, June 6, 1866 (E. Bartlett coll.); 1 ♀ ad., Teffé (Hoffmanns), all three in the Tring Museum.

(b) *R. poliocephalus sclateri* Hellm.

R. poliocephalus sclateri Hellmayr, *Verhandl. Zool. Bot. Ges. Wien* liii. p. 207 (1903.—Barra do Rio Negro; crit.); idem, *Nor. Zool.* xiii. 1906. p. 361 (Prata, Pará); Snethlage, *Journ. f. Ornith.* 1908. p. 527 (Arumatheua, Tocantins); Berlepsch, *Nor. Zool.* xv. 1908. p. 131 (Cayenne).

R. sulphurescens (errore!) Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1867. p. 578 (Pará: vidi).

R. poliocephalus (nom. nud.) Pelzela, *Zur Orn. Bras.* ii. 1868. p. 110 (Barra do Rio Negro, Marabitanas, Rio Negro; Bahia: vidi); Sclater, *Cat. Birds Brit. Mus.* xiv. p. 171 (part.: specimen ex Pará—Layard: vidi); Berlepsch & Hartert, *Nor. Zool.* ix. 1902. p. 47 (part.: Nericagua, Maipures, Suapure).

R. megacephalus (errore) Layard, *Ibis* 1873. p. 383 (Pará: vidi); Taczanowski, *Orn. Pérou* ii. 1884. p. 283 (part.: Cayenne); Salvin, *Ibis* 1886. p. 501 (Rio Carimang, Brit. Guiana); Sclater, *Cat. Birds Brit. Mus.* xiv. p. 170.

R. klagesi Ridgway, *Proc. Biol. Soc. Wash.* xix. p. 115 (1906.—Maripa, Caura, Venezuela).

Hab. North Brazil: Arumatheua, on the R. Tocantins (Snethlage); Pará (Layard, Wallace), S. Antonio do Prata, near Pará (Hoffmanns); Marabitanas and Barra (= Mauáos), on the Rio Negro (Natterer); Calama, Rio Madeira (Hoffmanns). East Brazil: Bahia (Kammerlacher coll., Mus. Vindob.; Mus. Brit.†). Cayenne (Cherrie, Jelski). Surinam: near Paramaribo (Chunkoo coll. in Mus. Tring). British Guiana: Merumé, R. Carimang, Ourumee (Whitely). Venezuela: Nericagua and Maipures, R. Orinoco (Cherrie); Suapure, Maripa, Caura R. (Klages).

Characters. Cap nearly uniform slate-grey or very slightly suffused with olive-green; back duller green than in *R. p. poliocephalus*. Lower parts pale yellow, underlaid with pale greyish on the chest; throat and foreneck greyish white or, at least, strongly suffused with whitish.

Wing (♂) 55—60, (♀) 52—57; tail (♂) 45—52, (♀) 42—45 mm.

Obs. I am unable to discover any constant differences, connected with distribution, among a large number of skins from various localities. *R. klagesi* is clearly a synonym of *sclateri*, examples from the Caura being in every respect identical with the types. Moreover, Mr. Ridgway compares his alleged new form only with *R. sulphurescens*, from which it is, of course, quite distinct.

* The examples from La Pricion, Caura, turn out to belong to *R. s. sulphurescens*.

† *R. megacephalus* Sclater, *Cat. Birds Brit. Mus.* xiv. p. 170: specimen *a*.

Examined: 1 ♂ ad., Manáos (*type*), 1 ♂ ad., 1 imm., Marabitanas, 1 ♂, 1 ♀, Babia, in the Vienna Mus.; 1 ♂ ad., Nericagua, in Mus. H. v. B.; 2 ad. from Pará (Layard, Wallace coll.), 1 ad., Babia, in the Brit. Mus.; 1 ♂ ad., Maipures, 1 ♂, 1 ♀, Snapure, Caura, 1 ♂, Ourumee, 3 ad., Paramaribo, Surinam, 1 ♂ ad., Prata, Pará, 1 ♀ ad., Calama, 2 ad., Cayenne, all in the Tring Museum.

115. *Pitangus lictor* (Licht.).

Linus lictor Lichtenstein, *Verz. Dobl. Berliner Mus.* p. 49 [1823.—Pará].

Pitangus lictor Hellmayr, *Nor. Zool.* xiv. p. 356 (Humaytha).

No. 535. ♀ ad., Jamarysinho, 11. ix. 1907. "Iris brown, feet and bill black."
—Wing 80; tail 67; bill 29 mm.

This bird has a decidedly narrower bill than any of the numerous specimens before me, but does not otherwise differ.

[116. *Myiodynastes maculatus* (P. L. S. Müll.).

Muscicapa maculata P. L. S. Müller, *Natursyst.* Suppl. p. 169 (1776.—ex D'Aubenton, Pl. enl. 453. fig. 2: Cayenne).

Myiodynastes audax Pelzeln, *l.c.* p. 112 (Borba).

Right bank: Borba (Natterer).]

[117. *Onychorhynchus coronatus* (P. L. S. Müll.).

Cf. *Nor. Zool.* xiv. p. 356 (Humaytha).

Left bank: Humaytha (Hoffmanns).

The species occurs in French Guiana, Venezuela (Caura), Lower Amazonia, and Northern Peru.]

[118. *Myiobius barbatus barbatus* (Gm.).

Muscicapa barbata Gmelin, *Syst. Nat.* 1. ii. p. 933 (1789.—based on D'Aubenton, Pl. enl. 830. fig. 1: Cayenne).

Myiobius barbatus Pelzeln, *l.c.* p. 113 (Borba).

Right bank, Lower Madeira: Borba (Natterer).

A single adult male taken at Borba, February 25, 1829, resembles Cayenne skins, but is larger (wing 67; tail 64 mm.). The foreneck is faintly tinged with pale ochreous, as is also sometimes the case in specimens from French Guiana. For the present I must refer it to the typical race.]

119. *Myiobius barbatus mastacalis* (Wied).

Muscicapa mastacalis Wied, *Reise Brasil.* ii. p. 151 (1821.—R. Catolé, tributary of the Rio Pardo, Southern Babia); cf. *Abhandl. Bayer. Akad. Wissensch. II. Cl.* vol. xxii. 3. pp. 641-2.

Myiobius barbatus barbatus (errore!) Hellmayr, *Nor. Zool.* xiv. p. 357 (Humaytha).

No. 910. ♀ ad., Maruins, 7. vi. 1908.—Wing 59½; tail 57½; bill 11½ mm.

No. 875. (♂) juv., Marmellos, 27. xii. 1907.—Wing 57; tail 55; bill 10 mm.

"Iris brown, feet greyish brown, bill dark grey or blackish, below pale grey."

No. 910, an adult female in full plumage, is very different from topotypical Cayenne skins of *M. b. barbatus* in the Munich Museum, and agrees pretty well with a female from Eastern Brazil (*M. b. mastacalis*). In both the throat, foreneck,

chest, sides, and under tail-coverts are ochreous buff, the middle of the lower breast and abdomen alone being pale sulphur-yellow; crown and mantle dull brownish olive. The specimens from Humaytha and Marmellos also show a decided ochreous tinge on throat, chest, etc., though to a lesser degree.

120. *Myiobius erythrurus fulvicularis* Salv. & Godm.

[*Myiobius erythrurus* Cabanis in *Arch. Naturg.* 13. i. p. 249. pl. 5. fig. 1 (1847.—Guiana, Cayenne).]

Myiobius fulvicularis Salvin & Godman, *Biol. Centr. Americ.* ii. p. 58 (1889.—Santa Fé, Veragua).

M. erythrurus (errore!) Pelzeln, *l.c.* p. 114 (Engenho do Gama, Borba, Marabitanas, Rio Içanha).

Nos. 67, 80, 207. ♂♂ ad., Calama, 17. vi. 12. vii. 1907.—Wing 49—51; tail 40—42; bill 8—9 mm.

No. 929. Adult, Marúis, 14. vi. 1908.—Wing 50; tail 42; bill $7\frac{1}{2}$ mm.

"Iris brown, feet brown or greyish brown, bill grey."

The series agrees with examples from Teffé, Bogotá, etc. Natterer's specimens from the Madeira and Rio Negro belong likewise to this form. Cf. my remarks in *Nor. Zool.* xiv. p. 48.

121. *Pyrocephalus rubinus rubinus* (Bodd.).

Muscicapa rubinus Boddaert, *Tabl. Pl. enl.* p. 42 (1783.—ex Buffon: "Pays des Amazones").

Pyrocephalus r. rubinus Hellmayr, *Nor. Zool.* xiv. p. 357 (Humaytha).

No. 297. ♂ juv., Calama, 29. vii. 1907. "Iris brown, feet and bill black."

Widely distributed in Brazil and Upper Amazonia.

122. *Empidonax lawrencei* Allen.

Empidonax lawrencei Allen, *Bull. Amer. Mus. N.Y.* ii. p. 150 (1889.—based on *Ochthoeca flaviventris* Lawrence, *Ann. New York Acad. Sci.* iv. 1887. p. 67; loc. ign.); cf. Hellmayr, *Nor. Zool.* xiii. 1906. p. 25 (crit.); idem, *l.c.* xiv. 1907. p. 357 (Humaytha).

Empidochanes fuscatus (errore! nec *Muscipeta fuscata* Wied) Pelzelo, *Zur Orn. Bras.* ii. p. 115. note 1 (part.: specimen ex Borba, February 7, 1830).

No. 148. ♂ ad., Calama, 2. vii. 1907. "Iris brown, bill black, below grey."—Wing 62; tail 58; bill 13 mm.

This bird is practically identical with specimens from Trinidad and Venezuela, the under parts being bright yellow, the chest and sides strongly tinged with olive-green. An adult obtained by Mr. Hoffmann at Humaytha, on his first journey to the Rio Madeira, and an immature male from Borba secured by Natterer, are paler yellow on the belly, and the chest is scarcely shaded with greenish.

123. *Empidonax euleri euleri* (Cab.).

Empidochanes euleri Cabanis, *Journ. f. Orn.* 1868. p. 195 (1868.—Cantagallo, prov. Rio de Janeiro, S.E. Brazil).

E. fuscatus (errore! nec *Muscipeta fuscata* Wied) Pelzeln, *l.c.* p. 115 (part.: specimen ex Borba, June 23, 1830; Rio de Janeiro, Ypanema, etc.).

No. 76. ♂ ad., Calama, 19. vi. 1907.—Wing 69; tail 64; bill 13 mm.

No. 680. ♀ juv., S. Isabel, Rio Preto, 11. x. 1907.—Wing 63; tail 56; bill 13 mm.

"Iris brown, feet and bill black, lower mandible white (No. 76), yellowish grey (No. 680)."

Perfectly agreeing with specimens from S. Paulo and Mattogrosso (Chapada).

E. e. euleri differs from *E. lawrencei* by its rufous brown or russet (instead of greenish olive) upper parts, and much paler lower surface, nearly whitish in the middle of the abdomen. Natterer's specimen from Borba belongs likewise to the present species. Its range is given by Berlepsch & Hellmayr in *Journ. f. Ornith.* 1905. p. 23.

With regard to *E. euleri argentinus* (Cab.), I may mention that additional specimens from Argentine in the Tring and Munich Museums do not bear out all the characters shown by the type (cf. *loc. cit.* p. 23). They are by no means smaller than *E. e. euleri*, but the upper parts are decidedly duller, less rufescent, and the belly is whitish with very little, if any, yellowish tinge on the flanks. An adult male from Chuchurras, prov. Huánuco, Peru (W. Hoffmanns coll.), in the Tring Museum, agrees in every respect with Argentine skins, while another from Pebas, N. Peru (Hauxwell coll.), in the British Museum, is undoubtedly referable to *E. e. euleri*! More material is required to establish the validity of this form or otherwise.

124. *Empidochanes fuscatus bimaculatus* (Lafr. & D'Orb.).

[*Muscipeta fuscata* Wied, *Beitr. Naturg. Bras.* 3. ii. p. 902 (1831.—Rio de Janeiro).]

Muscipeta bimaculata Lafresnaye & D'Orbigny, *Syn. Av.* i. in *Mag. Zool.* cl. ii. p. 48 (1837.—Yungas, Bolivia); cf. Berlepsch & Hellmayr, *Journ. f. Ornith.* 1905. pp. 21-22 (crit.).

Empidochanes fringillaris Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 116 (part.: Borba; Rio Paraná, Goiás, Cuyabá).

E. fuscatus bimaculatus Hellmayr, *Nor. Zool.* xiv. 1907. p. 354 (Humaytha).

Nos. 499, 549. ♀ ♀, Calama, 31. viii. 1907; Jamarysinho, 13. ix. 1907.—Wing 65, 67; tail 60, 61; bill 17 mm.

"Iris brown, feet plumbeous, bill blackish."

Similar, in coloration and size, to specimens from Mattogrosso (Chapada) and Northern São Paulo. The lower parts are white with the chest tinged with pale brownish grey, and the flanks very pale yellowish. Natterer obtained a young male at Borba, March 3, 1831, which does not differ either from Mattogrosso skins in corresponding plumage.

E. f. bimaculatus ranges from Eastern Bolivia (Yungas) through Central Brazil (Madeira district; Mattogrosso: Cuyabá, Chapada*) east to Goyaz (city of Goiás; Rio Thesouras, Araguaya †) and south to the valleys of the Paraná, Paranápanema, and Rio Grande in Northern São Paulo.‡

In Central and Southern São Paulo, however, the typical race, *E. f. fuscatus* (Wied), is met with. I have examined a series from Ypanema, and examples from S. Sebastião, Ubatuba, and Rio Feio.

Sneath's record of *E. fuscatus* § from Goyana, Tapajóz, is most probably referable to the pale, western race *E. f. bimaculatus*.

125. *Myiarchus ferox ferox* (Gm.).

Muscipapa ferox Gmelin, *Syst. Nat.* 1. ii. p. 934, excl. var. β (1789.—ex Brisson: Cayenne).

Myiarchus ferox Pelzeln, *l.c.* p. 116 (part.: Borba, Marabitanas).

No. 378. ♀ ad., Calama, 11. viii. 1907. "Iris light brown, feet and bill black." Wing 84; tail 85; bill 19 mm.

* *E. fuscatus* Allen, *Bull. Amer. Mus. N.Y.* iv. 1892. p. 340.

† Hellmayr, *Nor. Zool.* xv. 1908. p. 52.

‡ I have examined specimens from Barretos (near the Rio Grande), Rio Grande; Salto Grande, Rio Paranápanema; S. Jerônimo and Itapirú, on the Rio Tieté.

§ *Journ. f. Orn.* 1908. p. 503.

In the Vienna Museum there are, besides a large suite from South-Eastern Brazil, an immature male from Borba (March 3, 1830) and an adult male from Marabitanas, Rio Negro (April 4, 1831). These three skins agree, in colour and size, with topotypes from Cayenne. Birds from Southern Brazil (Bahia, Rio, São Paulo, Paraná) are somewhat lighter above, especially the cap paler and less sooty, and the bill is, as a rule, horn-colour instead of black. They are entitled to the name *M. ferox cantans* Pelz.*

126. *Myiarchus tuberculifer tuberculifer* (Lafr. & D'Orb.).

Tyrannus tuberculifer Lafresnaye & D'Orbigny, *Syn. Av. i. in Mag. Zool.* cl. ii. p. 43 (1837.—Guarayos, Eastern Bolivia); cf. Hellmayr, *Nov. Zool.* xiii. 1906, pp. 323-4 (crit.).

No. —. ♂ vix ad., Marmellos, 24. xii. 1907. "Iris greyish brown, feet and bill black."—Wing 75; tail 72; bill 17 mm.

In addition, I have examined in the Vienna Museum an adult male obtained by Natterer at Borba, March 1, 1830, which had been overlooked by Pelzel in his report. Both represent typical *tuberculifer* as defined by me (*l.c.*).

127. *Tyrannus melancholicus melancholicus* Vieill.

Tyrannus melancholicus Vieillot, *Nouv. Dict.* xxxv. p. 84 (1819.—ex Azara: Paraguay).

No. 525. Av. jr., Calama, 7. ix. 1907. "Iris brown, feet and bill black."

128. *Muscivora tyrannus* (Linn.).

Muscicapa Tyrannus Linnaeus, *Syst. Nat.* xii. 1. p. 325 (1766.—ex Brisson: "Canada (errore!) et Cayenna").

Muscivora tyrannus Hellmayr, *Nov. Zool.* xiv. p. 358 (Humaytha).

No. 440. ♂ ad., Calama, 22. viii. 1907.

Nos. 435, 436. ♀♀ ad., Calama, 20. viii. 1907. "Iris brown, feet and bill black."

[129. *Piprites chloris chlorion* (Cab.).

[*Pipra chloris* Temminck, Pl. col. 172. fig. 2 (1822.—Brésil, sc. Ypanema, S. Paulo).]

Hemipipo chlorion Cabanis, *Arch. Naturg.* 13. i. p. 234 (1847.—Cayenne).

Piprites chlorion Pelzel, *Zur Orn. Bras.* ii. p. 126 (part. : Borba, Salto Girao; Engenho do Gama, Rio Guaporé).

An adult male from Borba, obtained by Natterer in August 1830, belonging to the Vienna Museum, agrees with a male from Quonja, Brit. Guiana, October 12, 1887 (H. Whitely coll., Mus. H. v. Berlepsch), in the coloration of the lower parts: throat and under tail-coverts clear yellow, breast pale cinereous, middle of the abdomen very pale yellowish; but it has the grey of the nape slightly mixed with olive-green, and the rectrices more conspicuously tipped with yellowish white. A female from Cussary, a village on the south bank of the Amazons opposite Monte Alegre, is exactly like the one from Borba except in having the nape olive-green like pileum and back, without any grey. Its very dark, nearly blackish, bill seems to be a sign of immaturity.

The two males from Salto Girao, farther up the Rio Madeira, and Engenho do Gama, on the Rio Guaporé, in the Vienna Museum, have the cinereous breast distinctly washed with pale yellow, the abdomen brighter yellow, and the bill

* *Myiarchus cantans* Pelzel, *l.c.* pp. 117, 182 (1868.—Rio de Janeiro, Ypanema, Curitiba)

much smaller. They appear to represent a different race; unfortunately both are immature.

Good series from various localities are required to establish the geographical forms of *P. chlorion*.]

130. *Pipra aureola flavicollis* Schl.

Pipra flavicollis Sclater, *Contrib. Ornith.* for 1851. p. 143 (1852.—“Barra do Rio Negro”—locality erroneous; cf. *Ibis* 1906. p. 8).

P. aureola (nec Linnaeus!) Pelzel, *l.c.* p. 126 (part.: Borba).

P. aureola flavicollis Hellmayr, *Nov. Zool.* xiv. p. 358 (Humaytha).

No. 854. ♂ ad., Marmellos, 23. xii. 1907. “Iris white, feet dark red, bill black.”—Wing $61\frac{1}{2}$; tail 28; bill 9 mm. (Munich Musenm.)

Perfectly agreeing with the Humaytha series obtained by Mr. Hoffmanns on his first trip to the Rio Madeira, and differing in the same way from a large series of *P. a. aureola* from Surinam, Cayenne, Marajó, Monte Alegre, and Manáos.

Mr. Hoffmanns met with *P. a. flavicollis* exclusively on the left bank of the Rio Madeira (Marmellos, Humaytha), while, on the right bank, other forms were found. Hence it is to be presumed that Natterer's examples also might have been taken on the left side of the river, opposite Borba, and not in the immediate neighbourhood of that settlement.

131. *Pipra aureola fasciicauda* Hellm.

Pipra fasciicauda Hellmayr, *Ibis* (8) vi. p. 9 (1906.—new name for *P. fasciata* Lafr. & D'Orb. preoccupied: type from Yuracarès, East Bolivia).

Nos. 917, 918. ♂♂ ad., Marnius, Rio Machados, 9. vi. 1908. “Iris white, feet brown, bill black.”—Wing 65, $63\frac{1}{2}$; tail 28, 29; bill $9\frac{1}{2}$, 10 mm. (Munich Musenm.)

The two specimens are practically identical with a very large series from Eastern Bolivia (types) and Western Brazil (Chapada, R. Gnaporé, and Rio Paraná). All of the rectrices are banded with yellowish white on both webs, the orange-yellow throat-feathers faintly tipped with red; the chest is strongly washed with crimson, while abdomen and under tail-coverts are clear yellow, the latter with narrow, sooty blackish tips. The adult male from Itaituba, left bank of the R. Tapajóz,* kindly submitted for my inspection by Dr. Hartert, is also perfectly similar.

132. *Pipra aureola calamae* n. subsp.

Nos. 2, 399, 445. ♂♂ ad., Calama, 8. vi., 15, 23. viii. 1907. “Iris white, feet dark brown, bill blackish or plumbeous.”—Wing 64—65; tail 27—28; bill 10 mm.

Nos. 167, 239, 335. ♀♀ ad., Calama, 5, 18. vii., 5. viii. 1907. “Iris yellowish white, feet brown, bill plumbeous.”—Wing 63—64; tail 27, 29, 31; bill $9\frac{1}{2}$ —10 mm.

Nos. 754, 757. ♂ juv., ♀ imm., Allianca, 6, 7. xi. 1907. “Iris whitish, feet reddish brown, bill black.”—Wing (♀) 60, (♂) 65; tail (♀) 29, (♂) 31 mm.

Nos. 682, 713. ♀ imm., ♂ juv., S. Isabel, Rio Preto, 11, 17. x. 1907. “Iris yellowish or dingy white.”

♂ ad. Similar in tail-markings to *P. aureola purusiana* Sneathl.,† from which it

* Cf. *Nov. Zool.* xiv. 1907. p. 12.

† *P. fasciicauda purusiana* Sneathl., *Orn. Monber.* xv. p. 160 (1907.—type from Ponto Alegre, Rio Purús, W. Brazil).

is very easily distinguished by having not only a narrow frontal edge, but the whole anterior portion of the crown orange-yellow without any red; the breast deeper crimson; the flanks strongly shaded with olive; and especially by the deeper yellow of the abdomen and under tail-coverts being strongly suffused with crimson.

♀ ad. Not distinguishable from those of *P. a. fasciicauda* and *P. a. purusiana*.

Type in Tring Museum: ♂ ad., Calama, 23. viii. 1907 (W. Hoffmanns coll., No. 445).

The three adult males present very little variation *inter se*. In one specimen (No. 2) the two central pairs of rectrices are uniform black; the next has a distinct white patch near the base of the inner web; the three remaining ones are, on both webs, banded with yellowish white. In the two other examples (Nos. 399, 445) the innermost rectrix alone is wholly black, while the two next pairs show a white patch on the inner web. Otherwise they resemble No. 2. The under tail-coverts have long black tips, as in *P. a. purusiana*. That No. 757 (♂ juv.) from Allianca belongs to this new form, and not to *P. a. fasciicauda*, is proved by several just appearing new feathers on the abdomen being mainly crimson (not uniform clear yellow as in the latter form), and by the colour of the already assumed shorter under tail-coverts, which are yellow, tipped and edged with crimson, exactly as in the adult males from Calama.

This interesting new form approaches *P. a. flavicollis*, from the left bank of the Rio Madeira, by the coloration of the head and by the middle of the abdomen being suffused with crimson, yet it can readily be distinguished by having the flanks yellow mixed with olive (instead of deep black), the under tail-coverts bright yellow with crimson edges and long black tips (not uniform black), as well as by the white cross-bands on the outer rectrices.

It is a remarkable fact that the environs of Calama are inhabited by a peculiar race different from *P. a. fasciicauda*, which is met with on the Rio Machados above the waterfalls.

The group of *Pipra aureola* affords so excellent an example of geographical variation that I deemed it interesting to append a condensed review of the various forms and their characters.

(a) *Pipra aureola aureola* (Linn.).

Parus Aureola Linnaeus, *Syst. Nat.* x. p. 191 (1758.—based on Edwards, *Nat. Hist. Birds* ii. p. 83. pl. 83. fig. 2: "from some part of South America, near the equinoctial line"—*Surinam* fixed as type locality).

Hab. Cayenne; Surinam; British Guiana; N.E. Venezuela: Gnanoco (Orinoco delta), El Pilar near Carúpano, State of Cumaná; Lower Amazonia, from Marajó to Manáos (Barra do Rio Negro).

♂ ad. Head above except a narrow orange-yellow frontal band crimson; cheeks and ear-coverts strongly washed with crimson; chin and upper throat deep orange-yellow, the tips of the feathers more or less red; foreneck and breast deep crimson; abdomen and under tail-coverts black, middle line of abdomen narrowly pale red, flammulated with whitish. Tail black, outermost rectrix sometimes with a narrow white streak on the outer web near the shaft. Wing of twenty specimens 62—65; tail 28—32 mm.

Obs. Three males from Manáos (Natterer coll., Vienna Museum) have very

little yellow on forehead and throat, but they are very nearly matched by several examples from Surinam, etc.

With regard to the ♂ ad. from Santarem (Natterer coll., Vienna Museum) I have made a erroneous statement in *The Ibis* for 1906, p. 8, repeated in *Nov. Zool.* xiv. 1907, p. 358, in asserting that it was in every respect typical of *P. aureola*. On the contrary, a renewed examination of the specimen proved it to be somewhat intermediate between *aureola* and *fasciicauda*, hitherto regarded as distinct species, though I had suspected their subspecific affinities for a long time. While agreeing with average examples of *aureola* from Surinam, etc., in general coloration, especially in the black sides and under tail-coverts, it resembles Peruvian specimens of *P. a. purusiana* in the markings of the tail, viz. outermost rectrix with a white band across both webs, the two next ones with a white patch at the base of the inner web, though the latter is not quite so much extended as in the western bird. Further material is required to show whether the presence of white on the outer rectrices is a constant feature in birds from Santarem, and it would be unwise to base a new form upon a single skin. At all events, Natterer's example is of great interest, proving as it does the near relationship of *aureola* and *fasciicauda*, which henceforth can be regarded as only subspecifically distinct.

(b) *Pipra aureola flavicollis* Schl.

Hab. Left bank of the Rio Madeira, Brazil: Humaytha, Marmellos (Hoffmanns).

For the locality Borba (Natterer) see above, p. 303.

♂ ad. Agrees with *P. a. aureola* in having the sides, nuder tail-coverts, and the rectrices black; but the red area in the middle of the abdomen is rather more extended, as well as more decidedly flammulated with whitish or yellowish; the front and sides of the head and the throat are clear yellow, with but a little red near the upper and posterior edge of the ear-coverts. (Cf. *Nov. Zool.* xiv. 1907, p. 358.) Wing of nine males 62—64½; tail 27—30 mm.

Examined: 1 ♂ ad., "Barra" (type of subspecies); 2 ♂♂ ad., "Borba" (Natterer); 4 ♂♂ ad., 1 ♂ vix ad., Humaytha, 1 ♂ ad., Marmellos (Hoffmanns).

(c) *Pipra aureola fasciicauda* Hellm.

Hab. Eastern Bolivia, headwaters of the Rio Mamoré: Ynraçarès, Guarayos, Santa Cruz de la Sierra (D'Orbigny), San Mateo (G. Garlepp in Mus. H. v. Berlepsch). Central and Western Brazil from the Paraná, Paranapanema, and Paranaíba Rivers (Araguary) in the south, northward to Goyaz (Natterer, Baer) and Mattogrosso (Chapada; Villa Maria on the Rio Paraguay; Villa Bella de Mattogrosso and Engenho do Gama, on the banks of the Rio Guaporé). Also obtained by Mr. W. Hoffmanns near Marnins, above the waterfalls of the Rio Machados, right-hand tributary of the Rio Madeira, and at Itaitúba, left bank of the Rio Tapajós. (Cf. also *Nov. Zool.* xv. 1908, p. 54.)

♂ ad. Differs from the two preceding races by having no black whatever on the belly, the whole abdomen below the crimson breast being clear yellow, and the under tail-coverts yellow with narrow, dull black tips or edges. Moreover, the rectrices are crossed by a broad, uninterrupted band of white or pale yellowish, reaching over both webs. In the coloration of the throat and sides of the head, this form is intermediate between *aureola* and *flavicollis*, but nearer the latter. Throat

and foreneck are clear yellow, with, however, slight pale red tips to the feathers ; there is usually a little more crimson on the ear-coverts, and the yellow of the forehead is less pure as well as less extended than in *P. a. flavicollis*. Wing $63\frac{1}{2}$ —66 ; tail 28—32 mm.

Obs. In a considerable series the characters as given above are quite constant. The abdomen is invariably clear yellow, without any red, and decidedly contrasted with the crimson breast ; the under tail-coverts are likewise yellow narrowly tipped or edged with dull black ; all of the rectrices show a broad whitish or yellowish band across both webs. The feathers of the throat and foreneck are more or less conspicuously, though slightly, tipped with pale red. As stated above (p. 303) the birds from Itaituba and Maruins are perfectly similar to topotypical specimens from Eastern Bolivia.

Examined : 4 ♂♂ ad., Faz. Cayoá, Salto Grande, Rio Paranapanema, 3 ♂♂ ad., Chapada, Mattogrosso, 1 ♂ ad., Engenho do Gama, Rio Guaporé, 2 ♂♂ ad., Maruins, all in the Munich Museum ; 1 ♂ ad., Faz. Cayoá, 3 ♂♂ ad., Rio Jordão, Paranahyba (Aragnary), 1 ♂ vix ad., Itaituba, in the Tring Museum ; 5 ♂♂ ad. from Engenho do Gama, Villa Bella de Mattogrosso, Villa Maria, Rio Paraná, and Goiaz, in the Vienna Museum ; 1 ♂ ad., Guarayos, E. Bolivia, *type of species*, in the Paris Museum ; 2 ♂♂ ad., San Mateo, Bolivia, in Mus. H. v. Berlepsch.

N.B.—I have not seen examples from the Tocantins, where both Wallace * and Sneathlage † met with the species.

(d) *Pipra aureola purusiana* Sneathlage.

P. fasciicauda purusiana Sneathlage, *Orn. Monber.* xv. p. 160 (1907.—Ponto Alegre, Rio Purús).

Hab. W. Brazil : Bom Lugar, Ponto Alegre, Monte Verde on the Rio Purús. Eastern Peru : Ucayali (Bartlett). Central Peru : Chuchurras, Huánuco (Hoffmanns).

♂ ad. Agrees with *P. a. fasciicauda* in the clear yellow abdomen without any black or red, but differs at a glance by having the central rectrices uniform black and the black tips to the under tail-coverts much wider. The yellow of the throat and foreneck is bright yellow without red tips, like *P. a. flavicollis*, while the front and sides of the head are more like *P. a. fasciicauda*.

Five adult males from the Rio Purús (incl. the type) measure : wing 64—65 ; tail 26—29 mm.

Five adult males from Peru (Ucayali, Chuchurras) measure : wing 63—64 ; tail 28—30 mm.

Obs. In specimens from the Purús the **two or four median rectrices** are uniform black, the two or three outer pairs are banded with white (or yellowish) on both webs, while the intervening ones have a white patch near the base of the inner web. In Peruvian skins the **six median rectrices** are without any white, otherwise they agree with the Brazilian ones.

(e) *Pipra aureola calamae* Hellm.

Hab. Brazil, right bank of the Rio Madeira : Calama, Allianca, São Isabel.

♂ ad. Agrees with Purús specimens of *P. a. purusiana* in the markings of the tail, but has the whole anterior portion of the crown orange-yellow, the breast

* Schater & Salvin, *P. Z. S.* 1867. p. 579 : *P. fasciata*.

† Sneathlage, *Journ. f. Orn.* 1908. p. 528 : *P. fasciicauda*.

deeper crimson, the flanks strongly washed with deep olive, and especially the deep yellow abdomen and basal portion of under tail-coverts much suffused with crimson. Wing 64—65; tail 27—28 mm.

133. *Pipra rubrocapilla* Temm.

Pipra rubrocapilla Temminck, *Rec. Pl. col.* tab. 54. fig. 3 (1821.—“Brésil”; we fix *Bahia* as typical locality); Pelzeln, *l.c.* p. 127 (Borba).

Nos. 140, 141. ♂♂ ad., Calama, 1 vii. 1907.—Wing 60, 62; tail $31\frac{1}{2}$, 32 mm.

No. 142. ♂ imm., Calama, 1. vii. 1907.—Wing 60; tail 32 mm.

No. 282. ♂ juv., Calama, 28. vii. 1907.

No. 776. ♂ juv., Allianca, 11. xi. 1907.

No. 928. ♂ ad. Marins, Machados, 12. vi. 1908.—Wing 62; tail 33 mm.

“Iris dingy white (♂♂ ad.) or brown (♂♂ imm. and juv.), feet pale grey or yellowish grey, bill grey.”

The adult males have the forehead and crown distinctly paler and more orange than the nape and sides of the head, agreeing in that respect with Pará examples (cf. *Ibis* 1906. p. 13, and *Nor. Zool.* xiv. 1907. p. 49). No. 142, in the greenish plumage of the female, shows some black feathers on the mantle and rump, and the head is mostly red.

[134. *Pipra caelesti-pileata* Goeldi.*

* Cf. *Nor. Zool.* xiv. 1907. p. 359 (Humaytha).

Left bank of the Rio Madeira: Humaytha (Hoffmanns).

Not obtained on the present expedition. The differences between this species and *P. exquisita* Hellm. are fully stated *l.c.*]

135. *Pipra nattereri* Sel.

Pipra nattereri Sclater, *Proc. Zool. Soc. Lond.* 1864. p. 611. tab. 39 (1865.—Borba); Pelzeln, *l.c.* p. 127 (Borba, Rio Madeira; Engenho do Gama, Rio Guaporé); Hellmayr, *Nor. Zool.* xiv. 1907. p. 360 (Borba).

P. gracilis Hellmayr, *Verhaull. Zool. Bot. Gesellsch. Wien* liii. p. 202 (1903.—Engenho do Gama, Rio Guaporé), descr. ♀.

Nos. 11, 139, 149, 151, 179, 189, 198, 206, 212, 221, 321, 350. ♂♂ ad., Calama, June, July, August 1907.—Wing 52—54; tail 26—29; bill 8—9 mm.

No. 710. ♂ ad., S. Isabel, Rio Preto, 16. x. 1907.—Wing 52; tail 26 mm.

No. —. ♂ ad., Allianca, November 1907.—Wing 52; tail 26 mm.

Nos. 554, 580, 581. ♂♂ ad., Jamarysinho, Rio Machados, 21. ix. 1907.—Wing 52—53; tail 25—27; bill 9 mm.

Nos. 190, 274. ♀♀ ad., Calama, 8, 26. vii. 1907.—Wing 52, 54; tail 30; bill $8\frac{1}{2}$, 9 mm.

* In a very curious paper (*Boletim Mus. Goeldi* v. 1908. pp. 85-91) Dr. Goeldi emphatically declares that this bird was described by him in 1904. Against this I have only to say that the first published description of *P. caelesti-pileata* is to be found in the *Comptes Rendus Soc. Congr. Internat. Zool. Berne* p. 549, dated May 25, 1905, though the volume did not appear until October or November of that year. In the 7th Supplement (February 1901) to Dr. Goeldi's *Verzeichnis der bisher wissenschaftlich beschriebenen neuen Thier- und Pflanzenformen*, where the name first appears in print, it is an absolute *nomen nudum*. The fact that Dr. Goeldi used the name *P. caelesti-pileata* in 1901 in labelling his specimens, and that the proofs of his paper are stamped “September 1904,” has no bearing whatever on the case, for zoological literature has only to deal with the dates of actual publication, as is well known to everybody familiar with the International Rules of Nomenclature. With regard to the footnote on p. 89, I am rather surprised to learn that Dr. Goeldi is not acquainted with the *Bulletin of the Brit. Orn. Club*, where he would have found a full description of *P. exquisita* (actually published March 24, 1905).

Nos. 753, 788. ♀♀ ad., Allianca, 6, 15. xi. 1907.—Wing 52, 53; tail 26, 29; bill 9 mm.

"Iris white or yellowish white, feet greyish yellow or pale yellow, bill blackish or grey, tip and lower mandible paler."

The majority of the adult males have the milky white cap laterally and posteriorly bordered by a narrow, pale bluish line: in these specimens the back is of a darker green, and the anterior portion of the white rump is faintly shaded with delicate bluish. In Nos. 554, 580, 581, 139, and in the Allianca example the pale bluish edge of the cap is replaced by an indistinct yellowish green line, the back is of a clearer, less intense green, and the white rump lacks the bluish tinge.

The series of females proves beyond doubt that my *P. gracilis* was based on an individual variety of *P. nattereri*. The two from Calama are quite typical, having the crown washed with dull bluish, and the throat as well as the foreneck strongly suffused with green; while those from Allianca have no bluish tinge on the crown, like the type of *P. gracilis*, with which one of them also agrees in the light, yellowish green colour of the throat.

Until recently *P. nattereri* was only known from the Rio Madeira, where it is confined to the right bank (from Borba to Allianca, and probably farther up the river, for the type of *P. gracilis* was obtained on the Rio Guaporé). Miss Snethlage, however, has lately found it at Villa Braga, on the left bank of the neighbouring Rio Tapajóz.*

136. *Pipra stolzmanni* Hellm.

Pipra stolzmanni Hellmayr, *Ibis* (8) vi. p. 44 (1906.—Marabitanas, Rio Negro); idem, *Nov. Zool.* xiv. 1907. p. 360 (Paraizo, Borba).

P. virescens (nec Pelzel) Pelzel, *Zur Orn. Bras.* ii. pp. 123, 187 (part.: Borba).

No. 981. ♂ ad., Marnius, Rio Machados, 8. vii. 1908. "Iris dingy white, feet and bill black."—Wing 51; tail 23; bill 10 mm.

Structure of the tail and coloration exactly as in the type and other specimens (from Bogotá, Borba, etc.). In the middle of the anterior crown there are a few minute, yellowish dots to be seen.

P. stolzmanni has, as yet, only been found on the right bank of the Rio Madeira, but as it is also met with in Eastern Peru and Ecuador, it is very likely to occur on the left bank as well.

[137. *Neopipo cinnamomea* (Lawr.).

Cf. Hellmayr, *Nov. Zool.* xiv. 1907. p. 361 (Humaytha).

Left bank: Humaytha (Hoffmanns). Not obtained on the present occasion.]

[138. *Xenopipo atronitens* Cab.

Xenopipo atronitens Cabanis, *Arch. f. Naturg.* 13. i. p. 235 (1817.—British Guiana); Pelzel, *Zur Orn. Brasil.* ii. p. 129 (Borba).

Right bank: Borba, in the forest of the Campina (Natterer). Not obtained by Mr. Hoffmanns.

N.B.—I am unable to detect any differences between typical Guianan skins (R. Rapununi, H. Whitely coll.) and those secured by Natterer on the Madeira and Rio Negro.]

* *Journ. f. Orn.* 1908. p. 501.

139. *Chiroxiphia regina* Sel.

Chiroxiphia regina (Natterer MS.) Selater, *Ann. Mag. Nat. Hist.* (2) xvii. p. 469 (1856.—Borba, Rio Madeira); Pelzeln, *l.c.* p. 129 (Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 361 (Humaytha, Paraíso).

No. 58. ♂ perad., Calama, 17. vi. 1907. "Iris reddish brown, feet greyish red, bill black."—Wing 74; tail 36; bill 9 mm.

No. 19. ♂ jnv., Calama, 11. vi. 1907. "Iris dark red, feet light greyish red, bill black."—Wing 70; tail 34; bill $9\frac{1}{3}$ mm.

Nos. 32, 260, 334. ♀ ♀ ad., Calama, 13. vi., 24. vii., 5. viii. 1907. "Iris brown or red, feet red, bill black."—Wing 67—70; tail 34; bill 9— $9\frac{1}{2}$ mm.

No. 953. ♀ ad., Maruins, 28. vi. 1908. "Iris brown, feet dark red."—Wing 71; tail 36; bill $9\frac{1}{2}$ mm.

The adult male has the black frontal band fully as broad, and the crest as deep golden yellow, as the specimens from the left bank (Humaytha) obtained by Mr. Hoffmanns on his first journey in 1906. Those from Paraíso with narrower black frontlet and more lemon-yellow crest, though in full breeding plumage, are apparently not quite adult. This is enhanced by the fact that the young male, still in the green juvenile plumage, has the crest of the same pale yellow hue.

C. regina is a perfectly distinct form, though it may prove to be merely a geographical representative of the *C. parvula* group. Mr. De Witt Miller, in his excellent monograph of the genus *Chiroxiphia*,* has suggested that *C. regina* might be closely allied to *C. napensis* Miller, from Eastern Ecuador. On comparison of the two species, I find this surmise to be quite correct. *C. regina* differs from *C. p. parvula* and *C. p. atlantica*, but agrees with *C. napensis* in its rather short crest, dark azure-blue mantle, and dark reddish (instead of yellow) legs and feet. Unfortunately I have not seen the female of *C. napensis*. That of *C. regina* differs at a glance from those of *C. p. parvula* and *C. p. atlantica* by having the upper parts of a much brighter olive-green, and the lower ones, including the under tail-coverts, nearly uniform oil-green. The range of *C. regina* extends over the area comprised between the Rio Solimões in the north, the Javarri to the west, and the Rio Madeira to the east. No other species of *Chiroxiphia* is known to occur within this district.

140. *Chiromachaeris manacus purus* (Bangs).

[*Pipra manacus* Linnaeus, *Syst. Nat.* xii. 1. p. 340 (1766.—based on "The Black-capped Manakin," Edwards, *Glean. Nat. Hist.* i. p. 107. pl. 260; Surinam, and on Brisson, *Ouv.* iv. p. 442: Cayenne).]

Manacus manacus purus Bangs, *Proc. New Engl. Zool. Cl.* i. p. 36 (1899.—Santarem, on the Amazon River, Brazil).

Chiromachaeris manacus (nec Linnaeus) Pelzeln, *l.c.* p. 130 (Borba, Engenho do Gama, São Vicente).

No. 112. ♂ ad., Calama, 27. vi. 1907.—Wing 52; tail 30; bill 9 mm.

No. 604. ♂ ad., Jamarysinho, Rio Preto, 1. x. 1907.—Wing 52; tail 30; bill 9 mm.

Nos. 639, 652, 693. ♂ ♂ ad., S. Isabel, Rio Preto, 8, 9, 13. x. 1907.—Wing 51—52; tail 30; bill 9 mm.

In addition, I have examined Natterer's series in the Vienna Museum, consisting of three adult males from Borba, a couple from Engenho do Gama, Rio Guaporé, and a female from São Vicente. The specimens from the Rio Madeira agree with a large suite from Pará and Maranhão (Miritiba), in the Munich Museum,

* *Bull. Amer. Mus. N. H.* New York xxiv. 1908. pp. 331-44.

in having the under tail-coverts as well as the middle of the belly pure white, and the whole rump grey like the upper tail-coverts; but differ slightly by the darker grey of the flanks and rump, as also by the decidedly wider black area of the mantle, the white nuchal band being consequently rather narrower. These differences are not very strongly pronounced, and may prove to be independent of locality. At all events, a series from Santarem should be examined before attempting any subdivision.

Examples from the north bank of the Amazon (Monte Alegre, Manáos), and from Barcellos, on the Rio Negro, belong, however, to typical *C. m. manacus* (L.), and are exactly like others from Surinam and Cayenne. The under tail-coverts are grey; the flanks darker and more extensively grey; the middle of the abdomen mixed with pale cinereous (instead of being pure white); the black colour of the mantle much more extended, the grey being nearly restricted to the upper tail-coverts.

The range of *C. m. purus*, according to our present knowledge, is as follows: N.E. Brazil, Maranhão: Miritiba (Schwanda coll.; Munich Museum); Pará: city of Pará (Suetblage, Wallace, Layard), Marca da Legua (Steere). Magnary, Marajó (Steere), San Antonio do Prata (Hoffmanns), Ourém, on the Rio Gnamá (Schulz coll.; Mus. H. v. B.); Amazonia: Santarem, south bank of the Amazon (Riker); Rio Madeira: Borba (Natterer), Calama, Jamarysinho, S. Isabel, Rio Preto (Hoffmanns), Engenbo do Gama and S. Vicente, on the Rio Gnaporé (Natterer).

N.B.—Peruvian specimens, which I have not seen, may also be referable to the present form.

141. *Schiffornis major* Des Murs.

Schiffornis major (Bonaparte MS.) Des Murs in Castelnau's *Voyage, Oiseau*, p. 66. pl. xviii. fig. 2 (1856.—Sarayaçu, Eastern Peru); Hellmayr, *Nov. Zool.* xiv. 1907. p. 362 (Borba; crit.).

Heteropelma rufum Pelzeln, *Zur Orn. Bras.* ii. p. 185 (1868.—Borba).

No. 64. ♂ vix ad., Calama, 17. vi. 1907.—Wing 83½; tail 60½; bill 14½ mm.

No. 439. ♀ ad., Calama, 22. viii. 1907.—Wing 82; tail 63; bill 14 mm.

No. 715. ♀ ad., S. Isabel, Rio Preto, 17. x. 1907.—Wing 78; tail 59; bill 14 mm.

No. 578. ♀ juv., Jamarysinho, 21. ix. 1907.—Wing 82; tail 58; bill 14 mm.

Two of the females are fully adult birds. Top of the head, nape, anterior and middle portions of the back uniform cinnamon-rufous; sides of the head, throat, and foreneck rather paler; the rest of the under parts still lighter, deep ochraceous. The male differs by its generally lighter coloration, especially by its much paler, bright creamy breast and abdomen.

The immature female has the crown mixed with brownish grey, and the mantle considerably duller, cinnamon-brown, corresponding to Des Murs' *S. major*, while the rufous-headed specimens agree with the types of *H. rufum* of Pelzeln.

142. *Scotothorus turdinus amazonum* (Sel.).

[*Muscicapa turdina* Wied, *Beitr. Naturg. Bras.* 3. ii. p. 817 (1831.—Bahia).]

Heteropelma amazonum Selater, *Proc. Zool. Soc. Lond.* 1860. p. 466 (1861.—Chamicuros, Eastern Peru); Pelzeln, *l.c.* p. 125 (Borba).

S. a. amazonum Hellmayr, *Nov. Zool.* xiv. p. 361 (Humaytha).

Nos. 94, 137. ♂ vix ad., ♀ ad., Calama, 22, 30. vi. 1907.—Wing 88, 86; tail 66, 63; bill 14, 15 mm.

No. 755. ♂ ad., Allianca, 7. xi. 1907.—Wing 90½; tail 70; bill 14 mm.

No. 973. ♀ vix ad., Maruins, 5. vii. 1908.—Wing 91; tail 65; bill 15 mm.

No. 1010. ♀ pull., Marnius, 13. vii. 1908.

[No. 1451. ♀ imm., Borba, 7. xii. 1906.—Wing 88; tail 65; bill $14\frac{1}{2}$ mm.]

In addition to the above, I have before me Natterer's series, consisting of twelve specimens, kindly lent by the authorities of the Vienna Museum; the four examples obtained by Mr. Hoffmanns at Humaytha; three skins from the Upper Orinoco (Mundnapo, Nericagua); two from the Caura Valley, six from British Guiana (*S. t. olivaceus*); one each from Cayenne and Surinam, and five from Prata, Pará (*S. t. wallacii*). The study of this large material revealed the fact that, notwithstanding a certain amount of individual variation, three distinct races are recognizable. Single specimens are not always distinguishable, yet it cannot be denied that the slight colour differences are connected with geographical distribution.

(a) *S. t. amazonum* (Sch.).

Hab. Peru: Chamiceros (Hanxwell, Bartlett), Yurimaguas (Stolzmann), Soriano (Jelski), La Gloria (Kalinowski), Cosnipata (Whitely), etc. W. Brazil: Villa Maria, Engenho do Gama (Rio Gnaporé), Mattogrosso (Natterer); Rio Madeira: Humaytha (Hoffmanns), Borba (Natterer), Allianca, Calama, Maruins (Hoffmanns); Rio Xié and Marabitanas, upper Rio Negro (Natterer). Eastern Ecuador: Sarayaçu (Buckley). Venezuela, Upper Orinoco: Mundnapo, Nericagua (Cherrie).

Specimens from Sarayaçu, Orinoco, and Rio Negro have, as a rule, the back brownish olive; the cap more or less tinged with cinnamonaceous; the throat and foreneck conspicuously washed with rufescent brownish; and the remainder of the under parts dark greenish olive. The series from the Rio Madeira and its headwaters (Engenho do Gama, Villa Maria) are generally less brownish, more greenish olive on the upper parts, and the belly is slightly paler, more greyish olive; but there are so many exceptions that I do not venture to separate them, inasmuch as I have no topotypical Peruvian material for comparison. Several examples from Humaytha and Calama show very little rufescent admixture on the pileum, and closely approach *S. t. wallacii*.

Immature birds have the outer aspect of the quills decidedly rufous brown, while in adult ones these edges are olive-brown, or very faintly tinged with russet.

(b) *S. t. wallacii* (Sch. & Salv.).

Hab. N.E. Brazil: Pará (Wallace, Sneath), Prata (Hoffmanns). French Guiana: Saint-Jean-du-Maroni (Le Mout; Mus. Munich). Surinam: near Paramaribo (Chunkoo; Tring Museum).

Five topotypes from near Pará differ from the preceding form by purer green back, with very little, if any, rufescent tinge on the crown; paler, more greyish green belly; and by having the throat but slightly, if at all, shaded with brownish. Two birds from Cayenne and Surinam are in every respect typical. As stated above, some specimens from the Madeira are hardly different from *wallacii*.

(c) *S. t. olivaceus* Ridgw.

Scotothorus olivaceus Ridgway, *Proc. Biol. Soc. Wash.* xix. p. 118 (1906.—Rio Mato, Caura, Venezuela).

Hab. Eastern Venezuela, Caura Valley: Mato R. (Klages), Nicare, La Pricion (Aulré). British Guiana: Bartica Grove, Camacusa, R. Carimang, Roraima (H. Whitely, jr.).

Although Mr. Ridgway compared his type with *S. t. rosenbergi* (Hart.), of Western Ecuador, the two birds have very little in common. *S. t. olivaceus* is exceedingly close to *S. t. wallacii*, which is also geographically the nearest. Yet my eight specimens (two from Canra, six from Brit. Guiana) differ by having the throat and foreneck much more conspicuously tinged with brownish, as well as by their duller, brownish olive back. In the latter respect they approach *S. t. amazonum*, but may be distinguished by the absence of cinnamonaceous on the crown. Two of the skins are, however, scarcely different from *wallacii*. The specimens from British Guiana are in every way identical with the two topotypes from the Canra River.

143. *Heterocercus linteatus* (Strickl.).

Elania linteata Strickland, *Contrib. Ornith.* for 1859. *Illustr.* p. 121. tab. fig. sin. (part.: ♂—"from the upper branches of the Amazon River").

Heterocercus linteatus Hellmayr, *l.c.* p. 362 (Humaytha); Pelzeln, *l.c.* p. 125 (Borba).

Nos. 985, 1021, 1027. ♂♂ ad., Maruins, 9, 16, 17. vii. 1908.—Wing 89—90; tail 54; bill $12\frac{1}{2}$ — $13\frac{1}{2}$ mm. "Iris brown, feet and bill black."

Nos. 1007, 1017. ♀♀ ad., Maruins, 12, 14. vii. 1908.—Wing 83, 86; tail 52, 54; bill 13 mm.

No. 793. ♀ ad., Allianca, 9. xi. 1907.—Wing 83; tail 51; bill 13 mm.

Until recently this beautiful species was only known from the Rio Madeira. Miss Sneathlage, however, has lately obtained specimens at Monte Alegre, on the Lower Amazons,* and found it common on the Tapajóz: Villa Braga, Goyana, Ilha do Papageio, and Ilha do Coata.†

[144. *Tityra cayana* (Linn.).

Lanius Cayanus Linnaeus, *Syst. Nat.* xii. 1. p. 137 (1766.—ex Brisson: "Cayania").

Tityra cayana Pelzeln, *l.c.* p. 119 (Borba).

Right bank: Borba (Natterer).

The single adult male in the Vienna Museum agrees, in size and colour of the bill, with specimens from French Guiana, Venezuela (Canra), etc. The basal portion of both mandibles (for about 16 mm.) is reddish yellow, the remainder black.]

145. *Tityra semifasciata semifasciata* (Spix).

Pachyrhynchus semifasciatus Spix, *Ac. Bras.* ii. p. 32. pl. xlv. fig. 2 (1825.—"in provincia Pará").

Tityra semifasciata semifasciata Hellmayr, *Nov. Zool.* xiv. p. 363 (Humaytha).

No. 431. ♂ ad., Calama, 19. viii. 1907.—Wing 119; tail 72; bill 26 mm.

No. 810. ♂ ad., Allianca, 2. xii. 1907.—Wing 118; tail 72; bill 24 mm.

"Iris yellowish red, feet dark grey, bill greyish red."

Typical of *T. s. semifasciata*. Cf. my revision of Spix's types, p. 668.

[146. *Tityra leucura* Pelz.

Tityra (Erator) leucura Pelzeln, *Zur Orn. Bras.* ii. pp. 120, 183 (1868.—Salto do Girao, Rio Madeira).

Right bank: Salto do Girao (Natterer).

Natterer obtained, in October 1829, a single immature male which is still

* *Journ. f. Orn.* 1907. p. 289.

† *Journ. f. Orn.* 1908. p. 504.

unique in the Vienna Museum. *T. leucura* is a near ally of *T. albitorques*,* with which it agrees in having the lores beset with black feathers, and the auricular region whitish; but differs at a glance by its pale greyish, at the tip almost white tail, without any trace of black. The bill too is much smaller. Although the type is an immature bird, I think there can be no doubt about its being an excellent form. It has the following dimensions: wing 102; tail 65; bill 16 mm.

Farther south, on the Rio Guaporé (Villa Bella de Mattogrosso, Engenho do Gama), in Western Mattogrosso (Chapada, Corumbá), and in Eastern Bolivia (Chiquitos, Santa Cruz-de-la-Sierra), another closely related species, *T. pelzelni* Salv. & Godm.,† is met with. This form is nearly allied to *T. i. inquisitor*, of South-Eastern Brazil, but differs by the greater extent of white at the base of the tail; besides, the rectrices show distinct white apical margins. From *T. albitorques* and *T. leucura* it may at once be distinguished by its black (instead of white) ear-coverts.]

147. *Hadrostomus minor* (Less.).

Querula minor Lesson, *Traité d'Orn.* livr. 5. p. 363 (end of 1830.—Cayenne).

No. 292. ♂ ad., Calama, 29. vii. 1907.—Wing 89½; tail 67; bill 18 mm.

No. 405. ♀ ad., Calama, 16. viii. 1907.—Wing 92; tail 69; bill 19 mm.

No. 1064. ♂ ad., Las Onças, Manicoré, 18. viii. 1908.—Wing 90; tail 63½; bill 17 mm.

"Iris brown, feet and bill black."

Agreeing with a series from Cayenne, Venezuela (Caura), Bogotá, etc.

The female of *H. minor* may easily be distinguished from that of *H. rufus* (*atricapillus*) by its blackish (not yellowish white) lower mandible. Besides, the back is dull olive, but slightly mixed with brownish, instead of being, as in *H. rufus*, bright cinnamon-rufous like the upper tail-coverts; the cheeks, auricular region, and under parts are much darker, deep ochraceous, instead of buff, etc., etc.

H. minor is new to the fauna of the Rio Madeira; but Natterer got a male on the Rio Guaporé,‡ and D'Orbigny obtained specimens in Guarayos and Yuracarés, Eastern Bolivia. §

148. *Pachyrhamphus marginatus* (Licht.).

Todus marginatus Lichtenstein, *Verz. Dobl. Berliner Mus.* p. 51 (1823.—Bahia; = ♀); cf. Berlepsch, *Noe. Zool.* xv. 1908. p. 141.

Pachyrhamphus atricapillus (nec Merrem) Pelzel, *l.c.* p. 121 (Borba).

No. 1006. ♂ ad., Maruins, 12. vii. 1908.—Wing 67½; tail 51; bill 13 mm.

No. 1043. ♀ ad., Maruins, 21. vii. 1908.—Wing 65; tail 48; bill 14 mm.

No. 1044. ♂ juv., Maruins, 21. vii. 1908.—Wing 65; tail 50; bill 12½ mm.

"Iris brown, feet and bill black."

The Maruins specimens agree with a series from Venezuela (Caura), Rio

* Specimens from Chyavetas, Peru (Brit. Museum), Barra do Rio Negro (Vienna Mus.), and Bogotá collections (in Tring) examined. The Central American form is different.

† *Tityra pelzelni* Salv. & Godm., *Biolog. Centr. Americ.* ii. p. 120 (1890.—Mattogrosso).

‡ *Psaris inquisitor* (nec Licht.) Lafr. & D'Orb., *Syn. Ar.* i. in *Mag. Zool.* 1837. cl. ii. p. 41 (Chiquitos, Santa Cruz, Bolivia).

Tityra inquisitor Allen, *Bull. Amer. Mus.* v. 1893. p. 110 (Corumbá, Chapada).

T. albitorques (nec Dubns) Pelzel, *Zur Orn. Bras.* ii. 1868. p. 120 (part.: Engenho do Gama, Mattogrosso).—All these specimens were examined by me.

§ Pelzel, *l.c.* p. 120.

§ D'Orbigny, *Voyage. Oiseaux* p. 302 (part.).

Negro, and Guiana in size and coloration. Two males and three females from Eastern Brazil (Rio de Janeiro and Bahia) have longer wings and tail.

In the case of additional material corroborating this difference, the northern birds would have to be provided with a new name, since *T. marginatus* and all other synonyms are strictly applicable to the South-East Brazilian race.

149. *Pachyrhamphus niger niger* (Spix).

Pachyrhamphus niger Spix, *Av. Bras.* ii. p. 33. pl. xlv. fig. 1 (1825.—no locality: Fonteboa, Rio Solimões fixed as terra typica).

P. polychropterus Pelzeln, *l.c.* p. 121 (part.: Borba, Barra do Rio Negro; Serra Carauinan, Rio Branco).

P. niger niger Hellmayr, *Nov. Zool.* xiv. p. 363 (Humaytha, Borba).

No. 449. ♂ ad., Calama, 24. viii. 1907.—Wing 77; tail 58; bill 15 mm.

No. 36. ♀ ad., Calama, 13. vi. 1907.—Wing 70; tail 53; bill 14 mm.

"Iris brown, feet and bill black, in the female lower mandible greyish."

The adult male is nearly uniform black both above and below. The two specimens obtained by Natterer near Borba and at the Serra Carauinan are duller, sooty blackish underneath, and the former has the feathers of the rump as well as the upper tail-coverts edged with slaty grey. Pelzeln (*l.c.*) mentions also examples from Salto Girao, but in the series forwarded for my inspection by Dr. Lorenz this locality is not represented.

150. *Lathria cinerea* (Vieill.).

Ampelis cinerea Vieillot, *Nouv. Dict.* viii. p. 162 (1817.—Cayenne).

Lathria cinerea Hellmayr, *l.c.* p. 363 (Humaytha).

Lipangus plumbeus Pelzeln, *l.c.* p. 122 (Borba).

Nos. 339, 481. ♂ ♀ ad., Calama, 3, 29. viii. 1907.—Wing 120; tail 115, 109 mm.

No. 802. ♀, Allianca, 26. xi. 1907.—Wing 120; tail 115 mm.

"Iris grey or greyish brown, feet dark grey, bill black."

151. *Lipangus simplex* (Licht.).

Muscicapa simplex Lichtenstein, *Verz. Dobl. Berliner Mus.* p. 53 (1823.—Bahia).

Lipangus simplex Pelzeln, *l.c.* p. 123 (Salto Girao, Borba).

Lipangus simplex Hellmayr, *Nov. Zool.* xiv. p. 364 (Borba).

Nos. 349, 553. ♀ ad., ♀ imm., Calama, 7. viii. 1907; Jamarysinho, 14. ix. 1907.—Wing 99, 95; tail 97, 92; bill 20 mm.

Nos. 1019, 1051. ♂ ad., ♀ vix ad., Maruins, 15, 22. vii. 1908.—Wing 100, 97; tail 95, 94; bill 19, 18 mm.

"Iris brown, feet and bill black."

152. *Laniocera hypopyrra* (Vieill.).

Ampelis hypopyrra Vieillot, *Nouv. Dict.* viii. p. 164 (1817.—"Guyane," sc. Cayenne).

Laniocera hypopyrra Hellmayr, *l.c.* p. 364 (Borba).

No. 305. ♀ ad., Calama, 30. vii. 1907. "Iris grey, feet blackish plumbeous, bill black."—Wing 108; tail 94 mm.

The spots on the sides of the chest are yellow, mixed with pale orange, exactly as in a specimen from Caura, Venezuela; while in others from the same locality they are either sulphur-yellow or orange.

[153. *Attila brasiliensis brasiliensis* Less.

Attila brasiliensis Lesson, *Traité d'Orn.* livr. 5. p. 360 (end of 1830,—“Brésil,” errore! the type is from Cayenne; cf. Pucheran, *Arch. Mus. Paris* vii. 1855. p. 366); Hellmayr, *Nov. Zool.* xiii. 1906. pp. 328-30 (crit.).

Dasycephala uropygialis Cabanis in Schomburgk, *Reisen in Brit. Guiana* iii. p. 686 (1848,—British Guiana).

Attila uropygialis Pelzeln, *Zur Orn. Bras.* ii. p. 96 (Salto do Girao).

Left bank of Madeira : Salto do Girao (Natterer).

The specimen obtained by Natterer is perfectly similar to russet-backed examples from Brit. Guiana and the Canra Valley. Lately I have been enabled to examine Cabanis' type of *D. uropygialis* (cf. *l.c.* p. 328), and found it to be a young bird of the present species, with the back dull russet-brown, large rufescent margins to the wing-coverts, etc.]

[154. *Attila spadiceus rufigularis* Pelz.

Muscicapa spadicea Gmelin, *Syst. Nat.* 1. ii. p. 937 (1788.—based on “Yellow-rumped Flycatcher,” Latham, *Gen. Syn. Birds* 2. i. p. 354: Cayenne).]

Attila rufigularis Pelzeln, *Zur Orn. Bras.* ii. pp. 96, 170 (1868.—Salto do Girao).

Left bank : Salto do Girao (Natterer).

The type, an immature bird, is still the only known specimen. It is most closely related to *A. s. spadiceus*, but the throat and sides of the head are of a much clearer and brighter ferruginous (without any brownish admixture), the axillaries and under wing-coverts lighter ochraceous, and the middle of the abdomen is more extensively white. A good series from the Rio Madeira is required to establish the claims of this form to recognition.

Moreover, I must confess that I have strong doubts about *A. brasiliensis* and *A. spadiceus* being specifically distinct, and should not be surprised if they should turn out to be merely phases of the same form!]

[155. *Attila thamnophiloides* (Spix).

Muscicapa thamnophiloides Spix, *Av. Bras.* ii. p. 19. pl. xxvi. fig. 2 (1825.—“in locis sylvaticis fl. Amazonum”).

Attila thamnophiloides Pelzeln, *l.c.* p. 93 (Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 364 (Borba).

Right bank : Borba (Natterer, Hoffmanns).]

[156. *Attila bolivianus nattereri* Hellm.

Attila nattereri Hellmayr, *Verhandl. Zool. Bot. Gesellsch. Wien* lii. p. 95 (1902.—Borba, Rio Madeira).

A. bolivianus (nec Lafresnaye) Pelzeln, *l.c.* p. 96 (Borba, Pará).

Right bank : Borba (Natterer). Not obtained by Mr. Hoffmanns.

A. b. nattereri differs from *A. b. bolivianus* by its considerably darker coloration and smaller size. The distinguishing characters are fully given *l.c.*: cf. also my remarks in *Nov. Zool.* xiii. 1906. p. 330. Miss Snethlage has lately sent, for my inspection, two males taken at Monte Alegre, Lower Amazons, which agree perfectly with the types in the Vienna Museum. The range of the two races is as follows :—

(a) *A. bolivianus bolivianus* Lafr.

Attila bolivianus Lafresnaye, *Rev. Zool.* xi. p. 46 (1848.—based on *Tyrannus rufescens* Lafr. & D'Orb., *Syn. Ar.* in *Mag. Zool.* 1837. cl. ii. p. 44; "Bolivie: Moxos, Chiquitos").
A. validus Pelzel, *Zur Orn. Bras.* ii. pp. 96, 169 (1868.—Villa Maria; Engenho do Gama and Villa Bella de Matogrosso, Rio Guaporé).

Hab. Eastern Bolivia: Moxos, Chiquitos (D'Orbigny). Western Matogrosso: Chapada (Smith); Villa Maria, Rio Paraguay; Engenho do Gama and Villa Bella, on the Rio Guaporé (Natterer). W. Brazil: Cachoeira, on the Rio Purús.*

Thirteen adults (Matogrosso, East Bolivia, Purús) measure: wing 94—100; tail 83—89 mm.

Obs. The types of *A. bolivianus* and *A. validus* are practically identical, and an adult male from the Upper Purús (Cachoeira) does not differ either.

(b) *A. bolivianus nattereri* Hellm.

Hab. Northern Brazil: Borba, Rio Madeira (Natterer); Monte Alegre, Amazons (Snethlage); Pará (Natterer).

Five adults (Borba, Pará, Monte Alegre) measure: wing 91—92½; tail 76—80 mm.]

157. *Phoenicircus nigricollis* Sw.

Phoenicircus nigricollis Swainson in Richardson, *Fauna Boreali-Americ. II. Birds* p. 491 (1831.—based on *Ampelis carnifex* Spix, *Ar. Bras.* ii. p. 4. pl. v.: "in sylvis fl. Nigri ad urbem Barcellonam").

Phoenicircus nigricollis Pelzel, *l.c.* p. 131 (Borba).

No. 156. ♀ ad, Calama, 3. vii. 1907. "Iris brown, feet greyish green, bill blackish brown."—Wing 110; tail 83; bill 15½ mm.

158. *Cotinga cayana* (Linn.).

Ampelis cayana Linnaeus, *Syst. Nat.* xii. 1. p. 298 (1766.—ex Brisson: "Brasilia, Cayana").
Cotinga cayana Pelzel, *l.c.* p. 133 (Borba).

No. 308. ♂ ad, Calama, 31. vii. 1907. "Iris brown, feet and bill black."—Wing 115; tail 80 mm.

Agreeing with examples from Surinam, Cayenne, etc.

[159. *Xipholena punicea* (Pall.).

Turdus puniceus Pallas in Vroeg's *Catalogue, Adumbrat.* p. 2 (1764.—"Zuyd America").
Xipholena punicea Pelzel, *l.c.* p. 133 (Borba).

Borba (Natterer). This species is by no means confined to the Guianas (cf. *Cat. Birds* xiv. p. 387), but also widely distributed in Amazonia. Natterer obtained specimens at various places on the Rio Negro, and Mr. E. Garbe sent an adult male from the Rio Juruá to the Musen Paulista. Amazonian birds have somewhat longer wings and tails, but do not otherwise differ.]

[160. *Cephalopterus ornatus* Geoffr.

Cephalopterus ornatus Geoffroy, *Ann. Mus. d'Hist. Nat. Paris* xiii. p. 238. pl. 17 (1809.—loc. inc.); Pelzel, *l.c.* p. 135 (Engenho do Gama, Ponte do Guaporé, Forte do Principe).

Both banks: Forte do Principe, Guaporé (Natterer).]

* *A. bolivianus* Snethlage, *Journ. f. Orn.* 1908. p. 13.

161. *Gymnoderus foetidus* (Linn.).

Gracula foetida Linnaeus, *Syst. Nat.* x. p. 108 (1758.—“America, Rolander” ; *Suriuam* fixed as type locality, cf. *Noe. Zool.* ix. p. 58).

Gymnoderus foetidus Pelzeln, *l.r.* p. 135 (Borba) ; Hellmayr, *Nov. Zool.* xiv. p. 364 (Humaytha).

No. 325. ♂ ad., Calama, 2. viii. 1907.—Wing 195 ; tail 138 mm.

Nos. 326, 703. ♀ ♀, Calama, 2. viii. 1907 ; S. Isabel, 16. x. 1907.—Wing 195 ; tail 128 mm.

“Iris brown or grey, feet blackish or grey, bill bluish grey, bare skin on neck blue.”

162. *Furnarius minor* Pelz.

Furnarius (Opetiorhynchus) minor Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xxxi. p. 321 (1858.—“Brasilia,” sc. Rio Madeira, below the mouth of the Rio Mahisy ; cf. idem, *Zur Orn. Bras.* i. p. 35).

No. 105. ♀ ad., Calama, 25. vi. 1907.—Wing 73 ; tail 48 ; bill 17 mm.—
“Iris yellowish brown, feet and bill grey.”

Agrees in coloration and size with specimens from the left bank of the Tapajóz (Itaituba, Urucurituba), previously obtained by Mr. Hoffmanns. The species occurs also in Eastern Peru (Nauta, Iquitos, Santa Cruz).

[163. *Synallaxis hypospodia* Scf.

Synallaxis hypospodia Sclater, *Proc. Zool. Soc. Lond.* 1874. p. 10 (1874.—Bahia, Eastern Brazil).

Synallaxis sp., Hellmayr, *Nov. Zool.* xiv. p. 364 (Humaytha).

Left bank : Humaytha (Hoffmanns), a single adult female obtained.

On comparing this bird with additional examples from Bahia, I find that, except the nearly uniform black throat-patch, none of the other differences mentioned by me hold good, and Count Berlepsch, to whom it was submitted for inspection, also believes it to be *S. hypospodia*. It will be remembered that this species has lately been procured by M. Jean Kalinowski in the Santa Ana Valley, C.E. Peru.*]

[164. *Synallaxis propinqua* Pelz.

Synallaxis propinqua Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xxxiv. p. 101 (1859.—“Brasilia,” sc. Rio Madeira, below the mouth of the Rio Mahisy ; cf. Pelzeln, *Orn. Bras.* i. p. 37).

Rio Madeira : below the mouth of the Rio Mahisy (Natterer). Not obtained by Mr. Hoffmanns.

This very distinct species agrees with the South Brazilian *S. cinerascens* Temm. in the coloration of the throat, but has a much longer bill, much paler, greyish brown under parts passing into whitish along the middle of the belly, and the ferruginous colour of the wings and tail is considerably clearer. It is also found on the Rio Juruá,† in Eastern Peru, but does not appear to occur east of the Madeira Valley.]

165. *Synallaxis gujanensis inornata* Pelz.

[*Motacilla gujanensis* Gmelin, *Syst. Nat.* 1. ii. p. 988 (1789.—based on “Le Rougequene, de Cayenne,” D'Aubenton, Pl. enl. 686. fig. 2).]

Synallaxis inornata Pelzeln, *Sitzungsber. Akad. Wiss. Wien (math.-naturwiss. Cl.)* xx. 1. p. 160 (1856.—Salto do Girao, Rio Madeira) ; Pelzeln, *Zur Orn. Bras.* i. 1857. p. 36 (Salto do Girao, Borba).

S. gujanensis inornata Hellmayr, *Nov. Zool.* xiv. 1907. p. 364 (Humaytha).

S. gujanensis (errore!) Sneath, *Journ. f. Orn.* 1908. p. 13 (Monte Verde, Bom Lugar : Rio Purús).

* Berlepsch & Stolzmann, *Ornis* xiii. 2. 1906. p. 92.

† Ibering, *Revis. Mus. Paul.* vi. p. 435.

No. 462. ♂ ad., Calama, 26. viii. 1907.—Wing 62; tail 65; bill 15 mm.

No. 420. ♀ vix ad., Calama, Island of Sta. Barba, 18. viii. 1907.—Wing 69½; tail 64; bill 14½ mm.

No. 780. ♂ imm., Allianca, 12. xi. 1907.—Wing 61½; tail 66; bill 14 mm.

"Iris brown, feet grey, bill black, lower mandible pale."

Besides the above, I have examined the typical examples in the Vienna Museum (a couple from Borba, one from Salto do Girao), an adult female from Humaytha, and two males from the Rio Purús (Monte Verde, Bom Lugar: Pará Museum). The series differs from a very large number of skins of true *S. g. gajaniensis** by having the under parts nearly uniform rusty buff, with very little, if any, whitish admixture along the middle line of the abdomen. In the typical race, the foreneck, chest, and sides are buffy brown or pale earthy brown, while the middle of the breast and abdomen is extensively creamy white. Although single specimens are not always easily to be told, yet the difference is sufficiently marked to justify the recognition of *S. g. inornata*. By the bright coloration of the lower parts it slightly approaches *S. albilora* Pelz.,† but the latter is distinguished at a glance by the upper tail-coverts and tertials being cinnamon-rufous like the tail (instead of earthy brown like the back). The back, too, is fulvous brown mixed with cinnamon (instead of dull earthy brown), and the under surface is decidedly deeper ochraceous.

S. g. inornata, as here defined, inhabits the tract of country between the Madeira Valley (Borba, Calama, Humaytha, Salto do Girao) and the Upper Purús. I suspect, however, that the bird from the Rio Juruá identified as *S. albilora* by Prof. Ihering‡ will also prove to belong to it.

[166. *Synallaxis mustelina* Sel.

Synallaxis mustelina (Natterer MS.) Selater, *Proc. Zool. Soc. Lond.* 1874. p. 14 (1874.—Rio Madeira). *S. cinnamomea* (error!) Pelzel, *Zur Orn. Bras.* i. p. 37 (Rio Madeira, below the mouth of the Rio Marmellos).

Rio Madeira: below the mouth of the Rio Marmellos (Natterer).

In addition to the types (in the Vienna Museum) I have examined four adults obtained by Comte de Castelnau at Sarayacu and near Pebas, Eastern Peru, in the Paris Museum; a couple from the Upper Ucayali (Bartlett), and one adult female from Tefé (Hoffmanns), in the Tring Museum. All have a conspicuous blackish loreal stripe. *S. frenata* Suerthl.§ is therefore a synonym of *S. mustelina*.]

167. *Synallaxis rutilaus amazonica* Hellm.

Synallaxis rutilaus amazonica Hellmayr, *Nov. Zool.* xiv. p. 14 (1907.—Itaitúba, Tapajóz River); idem, *l.c.* p. 52 (Teffé); Suerthl. *Journ. f. Orn.* 1908. p. 506 (Bella Vista, right bank of the Tapajóz).

Nos. 6, 33. ♂ ad., ♂ imm., Calama, 8, 13. vi. 1907.—Wing 62, 61; tail 70, 65; bill 12, 13 mm.

* 9 from Cayenne, 1 ♂ ad. Bartica Grove, Brit. Guiana, ♂ ♀ Kwata, Surinam, ♂ ♀ Itaitúba, Tapajóz, 1 ♂ Teffé, Amazonas, 1 ♂, 2 ♀ Caura, 2 ad. from Bogotá, ♂ ♀ Pará, etc.

† *Sitzungsber. Akad. Wiss. Wien (math.-naturwiss. Cl.)* xx. 1. p. 160 (1856.—W. Matogrosso: Cuyabá Villa Maria, Engenho do Gama; cf. Pelzel, *Orn. Bras.* i. 1867. p. 37).

‡ *Revis. Mus. Paul.* vi. p. 435.

§ *Journ. f. Orn.* 1906. p. 523 (Santarem).

No. 275. ♀ ad., Calama, 26. vii. 1907.—Wing 62; tail (incomplete); bill 12 mm.

"Iris brown, feet dark grey, bill black."

The adult male (No. 6), like the type and several examples from Teffé, has the pileum and mantle deep cinnamon-rufous, with scarcely any brownish suffusion. The two other specimens and an adult female from Bella Vista (right bank of the Tapajóz) are somewhat intermediate between *S. r. amazonica* and *S. r. rutilans*. They have the vertex and mantle brown like the latter, but the lateral interscapular feathers are entirely or partly ferruginous, and there is a decided rufous admixture across the nape.

The range of *S. r. amazonica* is, accordingly, as follows: **North-Eastern Peru:** Xeberos, Chamicuro, Chyavetas (Bartlett), Yurimaguas (Stolzmann). **North Brazil:** Teffé, Rio Solimões (Hoffmanns); Calama, Rio Madeira (Hoffmanns); Itaituba, left bank (Hoffmanns), Bella Vista, right bank of the Rio Tapajóz (Snethlage); Santarem (Riker).

S. r. rutilans Temm. inhabits the Rio Negro and Orinoco district (cf. *Nov. Zool.* xiv. p. 13), but occurs also in Lower Amazonia on the banks of the Tocantins. I have examined a specimen from Cametá in the Berlin Museum,* and an adult female obtained by Miss Snethlage at Arumathena,† and found them perfectly agreeing with my large series from Venezuela, etc.

Still farther to the east, near Pará and on the Capim and Guamá rivers, another distinct form, *S. r. omissa* Hart., is met with, while a fourth race, *S. r. tertia* Hellm., dwells in Western Matogrosso (Rio Guaporé) and in the north-western parts of São Paulo (Irisanga).

Cf. my review in *Nov. Zool.* xiv. pp. 13–15.

168. *Siptornis vulpina vulpina* (Pelz.).

Synallaxis vulpina Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xx. 1. p. 162 (1856.—"Brasilia," sc. Rio Claro and Guardamar; Goyaz; Villa Maria, Egocho do Gama, Villa Bella: Matogrosso; Rio Madeira); Pelzeln, *Orn. Bras.* i. 1867. p. 37 (ut suprà).

No. 223. ♀ ad., Calama, 14. vii. 1907.—Wing 63; tail 61; bill $13\frac{1}{2}$ mm.

No. 485. ♂ juv., Calama, 29. viii. 1907.—Wing 65; tail 63; bill $13\frac{1}{2}$ mm.

No. 220. ♀ juv., Calama, 14. vii. 1907.—Wing 63; tail 61; bill $12\frac{1}{2}$ mm.

The adult female agrees exactly with Pelzeln's type-specimens kindly lent by Dr. von Lorenz, and others from Goyaz, Rio Grande (Northern S. Paulo), etc., in the Tring and Berlepsch Museums. The principal character of *S. r. vulpina* consists of the pileum and upper back being uniform fox-red, in decided contrast to the pale olive-brown ramp. Two females taken by Miss Snethlage on the island of Goyana, Tapajóz,‡ are in every respect similar to typical examples, while a single ♂ ad. from Arumathena (Tocantins §) is much paler, buffy brown, on the rump.

In coloration the sexes are alike, but the females are decidedly smaller. The Rio Madeira appears to form the western limit of the range of *vulpina*, since farther to the west, on the Rio Purús, another form, *S. vulpina alopecias* (Pelz.)|| is met with.

* *S. rubricata* Lichtenstein, *Nomencl. Av. Berol.* p. 63 (1851.—nom. nud.; cf. Cabanis & Heine, *Mus. Hein.* ii. 1859, p. 29, note ***).

† *S. rutilans* Snethlage, *Journ. f. Orn.* 1908, p. 530.

‡ *Journ. f. Orn.* 1908, p. 506.

§ *L.c.* p. 529.

|| *Synallaxis alopecias* Pelzeln, *Sitzungsber. Akad. Wiss. Wien (math.-naturwiss. Cl.)* xxxiv. p. 101 (1859.—Forte do Rio Branco; cf. Pelzeln, *Orn. Bras.* p. 37).

The adult males of the latter closely resemble *S. v. vulpina*, but, as a rule, there is more or less of brownish admixture in the fox-red of the nape, while the females differ at a glance in having the nape and back olive-brown like the rump, the pileum alone being rufous. In addition to the two type-specimens from Forte do Rio Branco (Natterer coll., Vienna Museum) I have before me sixteen skins from the middle and upper Orinoco (Altagracia, Maipures, Caicara, Ciudad Bolívar; Cherrie & Klages coll.), four from the Purús River,* and one from the Upper Sararé (Geay coll., Paris Museum). In contradiction to a former statement of mine,† I find that examples from North Peru (Nauta, Pebas) likewise belong to *alopecias* and **not** to *vulpina*. *S. vulpecula* ‡ is, therefore, most probably synonymous with *alopecias*, yet a series from the Ucayali should be examined.

169. *Siptornis gutturata* (Lafr. & D'Orb.).

Anthus gutturatus Lafresuaye & D'Orbigny, *Syn. Av. II.* in *Mag. Zool.* cl. ii. p. 14 (1838.—Yuracares, N.E. Bolivia); cf. Ménégau et Hellmayr, *Mém. Soc. d'Hist. Nat. Autun* xix. 1906. p. 76.

Siptornis gutturata Hellmayr, *Nov. Zool.* xiv. 1907. p. 354 (Humaytha).

No. 86. ♂ ad., Calama, 21. vi. 1907. "Iris dirty yellowish white, feet green, bill black, below grey."—Wing 70; tail 64; bill 16 mm.

There is no difference between the specimens from the Rio Madeira and others obtained on the Rio Negro (*S. hyposticta* Pelz.) and in Venezuela (Orinoco, Canra).

[170. *Ancistrops strigilatus* (Spix).

Thamnophilus strigilatus Spix, *Av. Bras.* ii. p. 26. pl. xxxvi. fig. 1 (1825.—Brazil); Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 78 (Borba).

Rio Madeira: Borba (Natterer). Mr. Hoffmanns obtained a couple at Tefé, Rio Solimões,§ and Prof. Ihering received another from the Rio Jurú. ||]

171. *Automolus subulatus subulatus* (Spix).

Sphenura subulata Spix, *Av. Bras.* i. p. 82. pl. lxxxiii. fig. 1. (1824.—"in sylvis flum. Amazonum").

No. 196. ♂ ad., Calama, 9. vii. 1907. "Iris dark brown, feet grey, bill black, below grey."—Wing 82; tail 69; bill 21½ mm.

This is the first record from the Rio Madeira. The bird agrees with Spix's type in the Munich Museum, except in being much brighter underneath because the latter is extremely faded through exposure to light. The lower parts are clear buffy, the inner sides of the breast and the flanks slightly tinged with olive; the feathers of the foreneck show obsolete edges of dark olive.

A. s. assimilis Berl. & Tacz.,¶ of Western Ecuador, is easily distinguished by its darker, more reddish brown back; much darker, chestnut-rufous colour of the rump, upper tail-coverts, and rectrices; by lacking the narrow buff shaft-lines on the

* Snethlage, *Journ. f. Orn.* 1908. p. 13.

† *Mém. Soc. d'Hist. Nat. Autun* xix. 1906. p. 75.

‡ Selater & Salvin, *P. Z. S.* 1866. p. 181 (Ucayali, East Peru).

§ *Nov. Zool.* xiv. 1907. p. 51.

|| *Revis. Mus. Paul.* vi. p. 436.

¶ *Automolus assimilis* Berlepsch & Taczanowski, *Proc. Zool. Soc. Lond.* 1883. p. 561 (Chimbo, Western Ecuador).

pileum and nape; and by having the breast and abdomen strongly washed with olivaceous.

Both differ from the typical species of *Automolus* by their straighter, slenderer bill.

172. *Automolus ochrolaemus turdinus* (Pelz.).

[*Anabates ochrolaemus* Tschudi, *Arch. Naturg.* 10. i. p. 295 (1844.—Peru).]

Anabates turdinus Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xxxiv. p. 110 (1859.—"Brasilia," sc. Barra do Rio Negro; Borba, Rio Madeira; cf. Pelzeln, *Zur Orn. Bras.* i. p. 41).

Automolus ochrolaemus turdinus Hellmayr, *Nov. Zool.* xiv. 1907. p. 365 (Humaytha).

No. 187. ♂ ad., Calama, 7. vii. 1907. "Iris brown, feet light green, bill black, below greyish green."—Wing 94; tail 80; bill $21\frac{1}{2}$ mm.

This specimen may be considered as topotypical. Cf. my remarks *loc.*

173. *Automolus infuscatus paraensis* Hart.

[*Anabates infuscatus* Slater, *Ann. Mag. Nat. Hist.* (2) xvii. p. 468 (1856.—"in Peruvia orientali").*]

Automolus sclateri paraensis Hartert, *Nov. Zool.* ix. p. 61, note (1902.—"Bemavides" [= Benevides] near Pará).

Anabates sclateri (nec Pelzeln) Pelzeln, *Zur Orn. Bras.* i. 1867. p. 41 (part.: Pará and Borba).

No. 200. ♂ ad., Calama, 10. vii. 1907. "Iris brownish grey, feet grey, bill dark grey."—Wing 93; tail 78; bill 21 mm.

In addition I have before me Natterer's specimens from Borba and Pará, an adult female from the Tapajóz, and a male obtained by Miss Snethlage at S. Antonio do Prata, near Pará. The series differs very markedly from *A. i. infuscatus* and *A. i. cervicalis* by having the pileum dark greyish olive (instead of bright olive-brown or russet). The range of *A. i. paraensis* comprises that tract of country south of the main valley of the Amazons lying between the Rio Madeira (Borba, Calama) and Pará. In *Nov. Zool.* xii. p. 279, I also referred to specimens from Manáos (Barra do Rio Negro), but this was a mistake, there being none from this locality in the Vienna Museum.

Cf. my review in *Nov. Zool.* xiv. 1907. p. 53.

174. *Philydor pyrrhodes* (Cab.).

Anabates pyrrhodes Cabanis in Schomburgk, *Reisen Brit. Guiana* iii. p. 689 (1848.—Coast of British Guiana); Pelzeln, *Zur Orn. Bras.* i. 1867. p. 40 (Salto do Girao).

Philydor pyrrhodes Hellmayr, *Nov. Zool.* xiv. p. 365 (Humaytha).

No. 54. ♂ ad., Calama, 17. vi. 1907.—Wing 93; tail 74; bill 19 mm.

Nos. 92, 201. ♀ ad., ♀ vix ad. (erroneously sexed "♂"), Calama, 22. vi., 10. vii. 1907.—Wing 85, 82; tail 63, 61; bill 18, $17\frac{1}{2}$ mm.

"Iris brown, feet yellowish grey or light yellow, bill grey (92), blackish (54, 201)."

Identical with Cayenne and Venezuelan (Caura) specimens. This species is widely distributed all over the Amazonian forest region from the Guianas to Eastern Peru and Ecuador. Salto do Girao, on the Rio Madeira, is the most southerly locality yet recorded. Mr. Hoffmanns obtained it also at Itaituba, left bank of the Tapajóz.†

* = *Anabates Sclateri* Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xxxiv. p. 111 (1859.—nom. emend. pro *A. infuscatus* Scl.; cf. Berlepsch & Hellmayr, *Journ. f. Orn.* 1905. p. 30).

† Hellmayr, *Nov. Zool.* xiv. p. 16.

175. *Philydor erythrocerus* (Pelz.).

Anabates erythrocerus Pelzeln, *Sitzungsber. Akad. Wissensch. Wien (math.-naturwiss. Cl.)* xxxiv. p. 105 (1859.—"Brasília," sc. Barra do Rio Negro; cf. Pelzeln, *Zur Orn. Bras.* i. p. 39).

No. 252. ♂ ad., Calama, 22. vii. 1907.—Wing 87; tail 67; bill 16 mm.

Nos. 18, 50, 101, 306, 470, 504. ♀ ♀ ad. and imm., Calama, 10, 16, 24. vi., 30. vii., 27. viii., 1. ix. 1907.—Wing 79—81; tail 62—68; bill 15—17 mm.

"Iris brown or greyish brown, feet brown or grey, bill grey, upper mandible darker."

Agreeing with a typical specimen from Barra do Rio Negro (Manáos). Examples from Pará are not different either. This species, though for the first time recorded from the Rio Madeira, has a wide range in Amazonia, being found from Cayenne, British Guiana, and Pará westward to the Purús and Juruá Rivers. Messrs. Selater & Salvin,* furthermore, mention it in their report on Bartlett's Peruvian collections, but I have not yet examined specimens from this country.

176. *Xenops genibarbis genibarbis* Ill.

Xenops genibarbis Illiger, *Prodr. Syst. Mamm. et Av.* p. 213 (1811.—Cametá, Lower Amazons); cf. Hellmayr, *Nov. Zool.* xiv. p. 54.

X. g. genibarbis Hellmayr, *Nov. Zool.* xiv. p. 365 (Humaytha, Borba).

X. approximans Pelzeln, *Zur Orn. Bras.* i. 1867. p. 41 (Salto Girao, São João do Crato, Borba, Rio Madeira, etc.).

Nos. 109, 298. ♂♂ ad., Calama, 25. vi., 30. vii. 1907.—Wing 66, 69; tail 50, 54; bill 14½, 15 mm.

No. 469. ♀ imm., Calama, 27. viii. 1907.—Wing 63; tail 48; bill 13½ mm.

No. 1042. ♂ ad., Maruius, 21. vii. 1908.—Wing 66; tail 51; bill 14½ mm.

"Iris brown, feet dark grey, bill dark grey or blackish."

Cf. my revision of the *X. genibarbis* group in *Nov. Zool.* xiv. pp. 54–5.

[177. *Xenops rutilus tenuirostris* Pelz.]

[*Xenops rutilus* Lichtenstein, *Ferz. Dubl. Berliner Mus.* p. 17 (1823.—Bahia).]

Xenops tenuirostris Pelzeln, *Sitzungsber. Akad. Wiss. Wien (math.-naturwiss. Cl.)* xxxiv. p. 112 (1859.—Salto do Girao); idem, *Zur Orn. Bras.* i. p. 41 (ut suprâ).

Left bank of the Rio Madeira: Salto do Girao (Natterer).

The type in the Vienna Museum is still unique. It is an immature male and measures: wing 63½; tail 45 mm.

X. r. tenuirostris is nearest to *X. r. heterurus* Cab. & Heine,† but the third and fourth rectrices (from outside) are wholly black, the fifth has the inner web black, and there is also a black stripe along the inner web of the penultimate tail-feather. Besides, the bill is much weaker and slenderer. This, however, may be due to immaturity, and should be confirmed by a series from the Rio Madeira. Yet I believe there can be no question of *X. r. tenuirostris* being a valid form.

Cf. the review of the geographical races of *X. rutilus* in *Nov. Zool.* xv. 1908. pp. 62–3.]

* *Proc. Zool. Soc. Lond.* 1873. p. 269.

† *X. heterurus* Cabanis & Heine, *Mus. Hein.* ii. p. 33 (1859.—Colombia).

178. *Sclerurus caudacutus umbretta* (Licht.).

[*Thamnophilus caudacutus* Vieillot, *Nouv. Dict.* iii. p. 310 (1816.—"se trouve à la Guyane").]

Myiothera umbretta Lichtenstein, *Verz. Dobl. Berliner Mus.* p. 43 (1823.—Bahia).

Sclerurus caudacutus umbretta Hellmayr, *Nov. Zool.* xiv. 1907. p. 56 (crit.).

S. caudacutus (errore !) Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 86 (part. : Borba) ; Snethlage, *Journ. f. Orn.* 1908. p. 507 (Villa Braga, Tapajóz).

No. 78. ♂ imm., Calama, 26. x. 1907.—Wing 93 ; tail 70 ; bill $21\frac{1}{2}$ mm.

Nos. 195, 284, 728. ♀ ♀ ad., Calama, 9, 28. vii., 25. x. 1907.—Wing 88—91 ; tail 64—68 ; bill 21—22 mm.

No. 992. ♀ ad., Marins, 10. vii. 1908.—Wing 88 ; tail 62 ; bill $20\frac{1}{2}$ mm.

"Iris brown, feet blackish brown or black, bill black, below grey."

Some of these specimens have the foreneck and sides of the head conspicuously tinged with tawny, while this is less apparent in others. As a whole, the series agrees very well with a number of skins from the Tapajóz (Villa Braga ; coll. Snethlage) and Pará ; but I must confess that, in view of the variability of the Lower Amazonian birds, I have strong doubts as regards the distinctness of *S. c. brunneus*. Cf. my review of *Sclerurus caudacutus* and its allies *l.c.* The range of *S. c. umbretta* is as follows :—

Eastern Brazil : Rio Espiritu Santo (Garbe coll. in Mus. Paulist.—vidi), Bahia (coll. Berlin, American and British Mus.) ; Prata, near Pará (Robert). Central Brazil : Villa Braga, on the Rio Tapajóz (Snethlage) ; Borba (Hoffmanns), Calama (Hoffmanns), Rio Madeira ; Marins, Rio Machados (Hoffmanns).

[179. *Sclerurus ruficularis* Pelz.

Sclerurus ruficularis Pelzeln, *Zur Orn. Bras.* ii. pp. 87, 161 (1868.—Borba, Rio Madeira ; Marabitanas, on the upper Rio Negro).

Right bank : Borba (Natterer).

This species is allied to *S. mexicanus* Schl., but has a much shorter and weaker bill, the throat of a decidedly brighter and clearer rufous, etc. It also occurs in the Pará district and in the Guianas.

Cf. Hellmayr, *Nov. Zool.* xiii. 1906. pp. 364–5.]

[180. *Sittasomus sylviellus amazonus* Lafr.

[*Dendrocolaptes sylviellus* Temminck, *Rec. Pl. col.* livr. 12. pl. 72. fig. 1 (1821.—"Brésil").]

Sittasomus amazonus Lafresnaye, *Rev. Mag. Zool.* (2) ii. p. 590 (1850.—"ad summum Amazonum") ;

Pelzeln, *Zur Orn. Bras.* i. p. 42 (Borba and Salto Theotônio : Rio Madeira).

Rio Madeira : Borba, Salto do Theotônio (Natterer).

The Borba specimens agree with a series from Teffé, Venezuela (Caura), and British Guiana : head, nape, and lower surface being mouse-grey, without any olive tinge ; the upper back rufescent brown, rather darker than in *S. s. chapadensis*. An adult female from Salto Theotônio, farther up the river, is paler throughout, and forms the transition to *chapadensis*. The latter form inhabits Western Matto-grosso (Chapada, Pari near Cuyabá, Urucúm, Engenho do Gama, on the Rio Gnaporé, not far from Villa Bella de Mattogrosso), the adjoining parts of Bolivia (Chiquitos), the northern states of Argentine, and Northern Paraguay. In Goyaz it intergrades with *S. s. sylviellus* (cf. Hellmayr, *Nov. Zool.* xv. 1908. p. 63).]

181. *Glyphorhynchus cuneatus castelnaudii* Des Murs.

[*Dendrocolaptes cuneatus* Lichtenstein, *Abhandl. Akad. Berlin a. d. Jahren* 1818-19. p. 204. pl. ii. fig. 2 (1820.—“in Brasiliæ provincia Bahia”; cf. idem, *l.c. a. d. Jahren* 1820-21. p. 264).]

Glyphorhynchus castelnaudii Des Murs in Castelnaud's *Voyage, Oiseau*, p. 47. pl. xv. fig. 2 (1856.—Santa Maria, Eastern Peru).

G. cuneatus (nec Licht.) Pelzeln, *l.c.* p. 42 (Borba).

No. 265. (♂) ad., Calama, 24. vii. 1907.—Wing 70; tail 71; bill 12 mm.

No. 900. ♀ ad., Marnins, 3. vi. 1908.—Wing 66; tail 66; bill 12 mm.

“Iris brown, feet dark grey, bill black, below greyish.”

Two eggs found in a hole of a tree and taken with the parent bird (No. 900) are uniform dull white, and measure 19 × 15, 18 × 15 mm.

[182. *Dendroornis guttata eytoni* (Sel.).

[*Dendrocolaptes guttatus* Lichtenstein, *Abhandl. Akad. Berlin a. d. Jahren* 1818-19. p. 201 (1820.—“in Brasiliæ provincia Bahia”; cf. idem, *l.c.* 1820-21. p. 264).]

Dendrocolaptes eytoni Selater, *Proc. Zool. Soc. Lond.* xxi. 1853. p. 69. pl. lvii. (July 1854.—Rio Capim, near Pará).

Dendroornis eytoni Pelzeln, *Zur Orn. Bras.* i. p. 45 (part.: Borba).

D. guttata eytoni Hellmayr, *Nov. Zool.* xiv. p. 366 (Borba).

Right bank: Borba (Natterer, Hoffmanns).

As pointed out by me (*l.c.*), the birds from Borba have the light markings of the crown and upper back rather brighter buff, and the belly more suffused with rusty, than typical Pará examples. However, I have lately seen several specimens from Pará, and Villa Braga, left bank of the Tapajóz, which agreed in these respects with those from Borba.]

183. *Dendroornis guttata guttatoides* (Lafr.).

Nasica guttatoides Lafresnaye, *Rev. Mag. Zool.* (2) ii. p. 387 (1850.—Lorette, N.E. Peru); cf. Ménégau & Hellmayr, *Mém. Soc. d'Hist. Nat. Autun* xix. p. 99.

Dendroornis guttata guttatoides Hellmayr, *Nov. Zool.* xiv. p. 365 (Humaytha).

D. eytoni Pelzeln, *l.c.* p. 45 (part.: Salto Theotônio).

Nos. 846, 856, 873. ♂♂ ad., ♂ juv., Marmellos, 21, 23, 27. xii. 1907.—Wing 115 (♂ juv.), 118, 122; tail 105—110; bill 36 (juv.), 38, 41 mm.

Nos. 850, 851. ♀♀, Marmellos, 22. xii. 1907.—Wing 114, 115; tail 95, 99; bill 39½, 41 mm.

“Iris brown, feet plumbeous, bill grey.”

Nos. 155, 202, 205, 421. ♂♂, Calama, 2, 10, 11. vii., 18. viii. 1907.—Wing 120 (No. 202), 124—128; tail 104 (No. 202), 110; bill 39½—42 mm.

No. 771. ♀ ad., Allianca, 11. xi. 1907.—Wing 118; tail 109; bill 41 mm.

“Iris brown, feet plumbeous, bill dark grey.”

The series from Marmellos (left bank) agrees in every detail with several topotypical Peruvian skins (in the Munich Museum) and others from Eastern Ecuador, etc. The bill is pale greyish yellow, with the basal third of the upper mandible only dusky; the pale markings on the head and upper back are deep buff, those of the hindneck being conspicuously edged laterally with blackish; the throat bright buff, the ground-colour of the lower parts deep ochraceous; the feathers of the foreneck have irregular blackish or dark brown edges, etc.

The specimens from Calama and Allianca, as well as the adult male obtained by Natterer at Salto Theotônio—*i.e.* those from the right bank—are decidedly intermediate between *guttatoides* and *eytoni*. The light markings are creamy white

on the head, clear buff on the mantle, exactly as in *eytoni* from Borba; underneath some are like *guttatoides*, while others are not distinguishable from *eytoni*. In the shape and colour of the bill they nearly agree with *guttatoides*, the upper mandible being greyish horn-colour, though somewhat darker than in specimens from the left bank (Humaytha, Marmellos, etc.), but not **black** as in *eytoni*. Cf. also *Nov. Zool.* xiv. pp. 59-60.

184. *Dendrornis elegans* Pelz.

Dendrornis elegans Pelzeln, *Zur Orn. Bras.* i. p. 63 (1897.—Eugenho do Gama, Rio Guaporé *).

No. 251. ♂ ad., Calama, 22. vii. 1907.—Wing 99; tail 83; bill 32 mm.

Nos. 108, 245, 343, 355. ♀ ad., ♀ ♀ imm. and juv., Calama, 25. vi., 20. vii., 7, 8. viii. 1907.—Wing 90-96; tail 75-80; bill 28 $\frac{3}{4}$ -30 mm.

No. 232. ♂ imm., Calama, 15. vii. 1907.—Wing 103; tail 82; bill 31 $\frac{1}{2}$ mm.

Nos. 796, 809. ♀ ad., ♀ imm., Allianca, 29, 30. xi. 1907.—Wing 92-95; tail 76-79; bill 29 $\frac{1}{2}$ -30 $\frac{1}{2}$ mm.

No. 1016. ♂ ad., Maruins, 14. vii. 1908.—Wing 101; tail 82; bill 29 mm.

Nos. 937, 1014. ♀ ♀ ad., Maruins, 21. vi., 13. vii. 1908.—Wing 89, 96; tail 74, 80; bill 28, 30 $\frac{1}{2}$ mm.

"Iris brown, feet plumbeous, bill grey, above darker."

Some of these specimens I have compared with the types in the Vienna Museum, and found them perfectly agreeing. *D. elegans* is a strongly marked species, not in any way to be confounded with *D. insignis* Hellm., which has a more western range. It is well characterized by having the whole back, from the nape down to the chestnut rump, covered with large, pearl-shaped spots of buff, and by the distinct, though narrow, buff shaft-lines or subapical dots on the lesser and median, sometimes also on the greater upper wing-coverts; the bend of the wing is largely cinnamon-rufous; the lateral interscapular feathers are spotted with buff like the back, all these pale markings being conspicuously edged with blackish; the nearly straight bill is dusky horn-colour, yellowish towards the base of the lower mandible.

D. insignis Hellm.† has the pale markings above deeper in colour, narrower and longer, more tear-shaped, and confined to the upper back; the upper wing-coverts are uniform olive-brown; the bill decidedly curved, with the greater part of the upper mandible whitish. This species ranges from Northern Peru through Ecuador to Eastern Colombia.

D. juruana Ihering,‡ from the Rio Juruá, agrees with *D. insignis* in the uniform upper wing-coverts and in the coloration of the upper parts, but the wedge-shaped buff markings of the chest are very much smaller and not extended over the lower breast, and the bill is shaped and coloured as in *D. elegans*. I am greatly indebted to Prof. von Ihering for the loan of two typical specimens, an adult and an immature male.

D. spirii (Less.)§ is the eastern representative of *D. elegans*, from which it mainly differs in the shape of the pale spots on the mantle, uniform olive-brown

* Pelzeln mentions also Manaqueri, but there are no specimens from this locality in the Vienna Museum.

† *Bull. B. O. C.* xv. p. 55 (March 1905.—Samiria, N.E. Peru).

‡ *Revist. Mus. Paulista*, vi. 1904. p. 436: *D. ocellata juruana* (1905.—Rio Juruá).

§ *Picolaptes Spirii* Lesson, *Traité d'Orn.* livr. 4. p. 314 (September 1830.—based on *Dendrocolaptes tenuirostris* (nec Licht.) Spix, *Av. Bras.* i. 1824. p. 88. pl. 91. fig. 2: Brazil).

upper wing-coverts, and in having the foreneck and breast marked with broad, oblong spots of buff. Moreover, there is hardly any rufescent tinge on the bend of the wing. The shape of the bill is exactly alike in the two species. *D. spixii* ranges from Pará westwards to Santarem, right bank of the Rio Tapajóz. Thanks to the kindness of Dr. Charles W. Richmond, I have been enabled to examine the type of *D. fraterculus* Ridgw.,* and found it identical with Pará examples. On the left bank of the Rio Tapajóz, however, *D. elegans* is met with, for Miss Snethlage has lately obtained a specimen at Villa Braga (*Journ. f. Orn.* 1908. p. 508).

The range of *D. elegans* is thus as follows:

Right bank of the Rio Madeira: Calama, Allianca; Marnins, Rio Machados (Hoffmanns); Engenho do Gama, Rio Guaporé (Natterer). Left bank of the Rio Tapajóz: Villa Braga (Snethlage).

Although I expect that *D. elegans*, *D. juruana*, *D. spixii*, and *D. insignis* will prove to be geographical modifications of a single species, it would be unwise to use trinomials until their relations are better understood. *D. pardalotus* (Vieill.), from the Guianas, Orinoco region, and Rio Negro, appears also to belong to this group.

[185. *Dendroornis ocellata* (Spix).]

"*Dendrocolaptes ocellatus (guttatus)*" Spix, *Ar. Bras.* i. p. 88. tab. 91. fig. 1 (1824.—"in sylvis Piahy," errore! cf. Hellmayr, *Abhandl. Bayer. Ak. Wissensch.* II. Cl. xxii. 3. 1906. p. 634). *Dendroornis ocellata* Pelzeln, *Zur Orn. Bras.* i. p. 45 (Borba).

Natterer obtained a good series near Borba, lower Rio Madeira. The specimens are practically identical with Spix's type in the Munich Museum. Though agreeing in shape and colour of bill, *D. ocellata* undoubtedly is specifically distinct from *D. elegans* and its allies. The uniform brown back, with hardly a few, hair-like buff shaft-lines on the nape and adjoining portion of the upper mantle, serves, together with other characters, to distinguish it at first sight.]

186. *Dendroornis obsoleta multiguttata* (Lafr.).

[*Dendrocolaptes obsoletus* Lichtenstein, *Abhandl. Akad. Wissensch. Berlin a. d. Jahren* 1818-19. p. 205 (1820.—Pará; cf. idem, *l.c. a. d. J.* 1820-21. p. 265).]

Nasica multiguttatus Lafresnaye, *Rev. Mag. Zool.* (2) ii. p. 417 (1850.—"De Fontiboa, haut Amazone et du Brésil"); cf. Méadéaux & Hellmayr, *Mém. Soc. d'Hist. Nat. Autun* xix. p. 105 (crit.).

Dendroplex similis Pelzeln, *Zur Orn. Bras.* i. pp. 46, 64 (1867.—Engenho do Gama, Rio Guaporé; Borba, Rio Madeira; Rio Negro).

Nos. 124, 278. ♀ ad., ♀ imm., Calama, 29. vi., 27. vii. 1907.—Wing 95, 90; tail 75; bill 25 mm.

"Iris dark brown, feet greyish brown, bill grey."

Specimens from the Rio Madeira (Calama, Borba) agree perfectly with the types from Fonteboa. The original example of *D. obsoletus* said to be from "Pará" differs by the pale stripes on the mantle being not or very indistinctly bordered with dusky. Until more specimens with definite localities come to hand it cannot be said with certainty whether this character is of any value. Miss Snethlage † has lately recorded *D. obsoleta* from the Tapajóz and Tocantins Rivers, unfortunately without any further comment.

* *Dendroornis fraterculus* Ridgway, *Proc. U. S. Nat. Mus.* x. 1887. p. 526 (1888.—Diamantina, near Santarem).

† *Journ. f. Orn.* 1908. pp. 508, 530.

187. *Dendroplex picus kienerii* (Des Murs).

[*Oriolus Picus* Gmelin, *Syst. Nat.* 1. i. p. 384 (1788,—based on D'Aubenton, Pl. enl. 605 : Cayenne).]

Dendroornis kienerii Des Murs in Castelnau's *Voyage, Oiseaux* p. 45. pl. xiv. fig. 1 (1856.—Ega, Rio Solimoëns); cf. Ménégau & Hellmayr, *Mém. Soc. d'Hist. Nat. Autun* xix. pp. 198-19).

Dendroplex picus Pelzeln, *Zur Orn. Bras.* i. p. 46 (Salto Theotonio, Borba); Hellmayr, *Nov. Zool.* xiv. p. 366 (Borba).

Nos. 103, 285, 391. ♂♂ ad., Calama, 24. vi., 28. vii., 14. viii. 1907.—Wing 111—114; tail 100—104; bill 28—29½ mm.

Nos. 388, 524, 722. ♀♀ ad., Calama, 12. viii., 7. ix. 1907; S. Isabel, Rio Preto, 19. ix. 1907.—Wing 97—103; tail 85½—90; bill 27—29 mm.

“Iris brown, feet grey or green, bill grey or pale green.”

These specimens, like others from Chiquitos (Eastern Bolivia), Mattogrosso, and the Rio Purús, present larger dimensions than a series of skins from Cayenne, Venezuela, Bahia, and Goyaz, and are much more rufescent on the lower parts. Ménégau & Hellmayr (*l.c.*) have already called attention to these differences and suggested the possibility of recognizing a race *D. picus kienerii*. Since then, I have examined much additional material, and, although single specimens from the interior of Brazil and Peru are sometimes hardly larger, I am now convinced that *kienerii* is a fairly well-marked subspecies. The range of *D. picus picus* and its ally is as follows :—

(a) *D. picus picus* (Gm.).

Cayenne, Surinam, British Guiana, Venezuela (Orinoco Valley). North Brazil: Rio Branco and Rio Negro (Barcellos). Eastern Brazil: from Marajó and Pará along the Amazons to Obidos and Monte Alegre, the left bank of the Tapajóz (Itaituba), south to Bahia and the sources of the Rio Aragnay (Goyaz, Rio Thesouras, Rio dos Piloens, etc.).

Obs. Specimens from Barcellos, Obidos, Itaituba, and Goyaz are perfectly similar to the topotypical Cayenne bird.

(b) *D. picus kienerii* (Des Murs).

Central Brazil, Mattogrosso: Cuyabá, Villa Maria (on the Rio Paraguay); Villa Bella de Mattogrosso, São Vicente, Rio Guaporé (Natterer); Rio Madeira: Salto Theotonio, Borba (Natterer), Calama, S. Isabel (Hoffmanns); Rio Purús: Monte Verde*; Rio Solimoëns: Ega (Castelnau). Eastern Bolivia: Chiquitos (D'Orbigny). Eastern Peru: Sarayacu, on the Ucayali (Castelnau), Pebas (idem), etc.

Obs. The birds from Cuyabá and Villa Maria are extreme specimens of this form, being large-sized and strongly suffused with rufescent underneath. For measurements see *Mém. Soc. d'Hist. Nat. Autun* xix. pp. 109-10. It is well to remark that the exceptionally small ♂ from Rio Guaporé (wing 88½, tail 75 mm.) is a very young bird, consequently of very little use.

188. *Dendrexetastes rufigula* subsp.

[*Dendrocolaptes (Orthocolaptes) rufigula* Lesson, *Œuvr. compl. Buffon* (ed. Lévêque), xx. p. 281 (1847.—Cayenne).]

No. 407. ♀ imm., Calama, 13 viii. 1907. “Iris yellowish brown, feet dark grey, bill greyish green.”—Wing 104; tail incomplete; bill 31 mm.

* *D. p. kieneri* Sæthblage, *Journ. f. Orn.* 1908. p. 14.—Specimen examined.

This bird stands somewhat between *D. r. rufigula*, from the Guianas, etc., and *D. r. devillei*, from Upper Amazonia. It agrees with the latter in the pale greyish colour of the bill, and in having the white markings below restricted to the fore-neck; however, the ground-colour of the lower parts is pale brown (not tinged with ochraceous), the throat shows half-concealed white spots, and the hindneck as well as the sides of the neck are streaked with white. In all these points it resembles *D. r. rufigula*, but the white markings are narrower, and those on the hindneck have **no** or scarcely any black lateral edges.

On the left bank of the Rio Madeira another form takes its place :—

[189. *Dendrexetastes rufigula devillei* (Laf.).

Dendrocolaptes Devillei Lafresnaye, *Rev. Mag. Zool.* (2) ii. p. 102 (1850.—Sarayaçu, Eastern Peru).

Dendrexetastes devillei Hellmayr, *Nov. Zool.* xiv. 1907. p. 366 (Humaytha).

Left bank of the Rio Madeira : Humaytha (Hoffmanns), thence through Western Brazil (Bom Lugar, Rio Purús *) to Eastern and Northern Peru (Sarayaçu, Iquitos, Samiria, etc.).]

[Having lately examined specimens of the three forms of *Dendrexetastes*, I think a few words about their distinguishing characters may be welcome to ornithologists.

(a) *D. rufigula rufigula* (Less.).

Syn. *Dendrocolaptes Temminckii* Lafresnaye, *Rev. Mag. Zool.* (2) iii. p. 145. pl. iv. (March 1851.—“Santa Fé de Bogotá”—errore!).

Dendrexetastes capitoides Eyton, *Contrib. to Ornith.* 1851. p. 76 (autumn 1851.—no locality).

Hab. French Guiana : Cayenne (Lesson, etc.), Ouanary (Geay) ; Surinam : near Paramaribo (Oluukoo ; two specimens in Tring Museum) ; British Guiana : Mines District (two specimens in Tring Museum). North Brazil : Barra do Rio Negro = Manãos (Natterer).

Characters. This form is characterized by having the foreneck and chest thickly covered with large, oval, whitish spots, bordered by a very distinct black line ; the chin only is uniform rusty buff, while the throat shows half-concealed white shaft-streaks ; nape and sides of neck with conspicuous, slightly pointed, whitish stripes, more or less distinctly edged laterally with black ; ground-colour of lower parts pale brown with a faint ochreous tinge. Upper mandible dark horn-brown ; lower one yellowish grey, darker at base.

Obs. Specimens from British Guiana and Manãos are practically identical. Two from Surinam differ by having slight dusky cross-lines in the middle of the abdomen and on the under tail-coverts. The sides of the head, including superciliary and temporal regions, are uniform earthy brown in *D. r. rufigula*, though in one specimen each from Surinam and British Guiana a few narrow whitish lines are to be noticed along the upper margin of the ear-coverts.

	Wing.	Tail.	Bill.	
1. ♂ ad., Paramaribo	106	110	32	mm.
— Imm. „	100	100 (moulting)	31	„
3, 4. Adults, Mines District, British Guiana	105, 109	108, 112	30, 32	„
5. ♂ ad., Barra do Rio Negro (Natterer) .	105	114	damaged	„

* Snethlage, *Journ. f. Orn.* 1908. p. 14.

(b) *D. rufigula paraensis* Lorenz-Liburnau.

Dendrexetastes paraensis Lorenz-Liburnau, *Verhandl. Zool. Bot. Gesellsch. Wien* xlv. p. 363 (1895.—Pará); idem, *Ann. Hofmus. Wien* xi. 1896, pp. 1-4, pl. 1.

Hab. N.E. Brazil: Marco da Legoa near Pará (Princess Therese of Bavaria).

Characters. Differs from *D. r. rufigula* by its stronger, stouter bill, slightly darker back, duller, more earthy brown under parts, and especially by having a row of distinct, though narrow, white streaks, laterally bordered with black, running along the upper margin of the ear-coverts, from the sides of the neck to above the eye.

I. Immature, Marco da Legoa, Pará, *Type*. Wing 104; tail 100; bill 32 mm.

Obs. I am under great obligation to H.R.H. the Princess Therese of Bavaria for the loan of the typical specimen.

(c) *D. rufigula* subsp.

Hab. North Brazil: Calama, right bank of the Rio Madeira.

See above. More material is required to establish the status of this form; it would not be scientific to base a new name on a single immature specimen.

(d) *D. rufigula devillei* (Lafr.).

Hab. Eastern Peru: Sarayaçu (Castelnau & Deville), Iquitos (Whitely), Samiria (Hauxwell). Western Brazil: Bom Lugar, Rio Purús (Snethlage); Humaytha, Rio Madeira (Hoffmanns).

Characters. Differs from (a) and (b) by lacking the white longitudinal streaks on the nape and sides of the neck. Moreover, the throat is uniform ochreous, without any trace of white stripes; the foreneck only shows a number of narrow buff shaft-lines; the ground-colour of breast and abdomen is much more tinged with ochraceous. The bill, too, is paler, the upper mandible being light yellowish grey, like the lower one.

Wing. Tail. Bill.

- | | | | |
|--|-----|-----|--------|
| 1. ♂ ad., Sarayaçu, East Peru, <i>Type of species</i> , Paris Museum | 108 | 112 | 32 mm. |
| 2. ♂ ad., Humaytha, Rio Madeira, Tring Museum . . . | 105 | 109 | 32 „] |

190. *Hylexetastes uniformis* Hellm.

Hylexetastes uniformis Hellmayr, *Rev. Franç. d'Ornith.* i. No. 7. p. 100 (November 1909.—Calama, Rio Madeira).

Xiphocolaptes Perrotii (nec *Dendrocolaptes Perrotii* Lafr.) Pelzeln, *Zur Orn. Bras.* i. 1867. p. 43 (Borba).

No. 271. ♂ vix ad., Calama, 25. viii. 1907. "Iris yellowish brown, feet greyish green, bill greyish red."—Wing 126; tail (slightly moulting) 110; bill 34 mm. *Type of the species*.

[No. 16013, Vienna Museum. ♂ imm., Borba, 9. i. 1830 (Natterer coll.).—Wing 125; tail 116; bill 38½ mm.]

No. 16012, Vienna Museum. ♀ ad., Borba, April 1830.—Wing 127; tail 116; bill 35 mm.

No. 16014, Vienna Museum. ♀ juv., Borba, 27. vi. 1830.—Wing 126; tail 112; bill 32 mm.]

Adult. Pileum clear rufescent brown; back bright cinnamon-brown, decidedly

contrasted with colour of crown ; lower rump and upper tail-coverts chestnut. Upper wing-coverts cinnamon-brown, somewhat paler and duller than the back, the inner webs of the greater series more rufous ; remiges chestnut, the outermost primaries narrowly edged with brownish. Tail uniform chestnut. A narrow rim round the eye bare of feathers, only a few small plumules on the lower edge of the eyelid. Sides of the head (viz. lores, cheeks, malar region, ear-coverts, and superciliary region) dull greyish brown (ashy brown), the shafts of the auricular feathers for the greater part whitish. Lower parts uniform earthy brown with a slight rufescent tinge, more conspicuous on sides, flanks, and under tail-coverts. Under wing-coverts dull orange, mixed with brownish towards the edge of the wing ; broad margin to inner web of remiges orange-buff. Bill dark red.

The adult female obtained by Natterer agrees with the type but for the slightly more rufescent breast and abdomen.

Another, immature, male from Borba is even more strongly washed with cinnamonaceous on the lower parts ; the feathers of the occiput and crown are narrowly edged with buff, and the bill is longer as well as slenderer.

An evidently young female from Borba has the sides of the head more brownish, and a shorter, darker bill.

This new species differs from *H. perrotii* (Lafr.)* in several important points. The latter bird is larger (two Cayenne skins in the British Museum measure : wing 135—140 ; tail 120—122 mm.) ; the anterior portion of the throat is buffy, in conspicuous contrast to the brown chest, etc. ; the middle of the belly shows more or less distinct dusky cross-lines ; furthermore, there is a well-defined dingy white band running from the nasal plumes under the eye to the lower portion of the auricular region.

H. perrotii has been described from Colombia. This locality, however, was most probably erroneous, since the specimens in the British Museum, skins of the unmistakable Cayenne make, agree perfectly with Lafresnaye's original description.

H. uniformis is, as yet, only known from the right bank of the Rio Madeira, and the four specimens described above are the only ones in European collections.†

191. *Nasica longirostris* (Vieill.).

Dendrocopus longirostris Vieillot, *Nouv. Dict.*—xxvi. p. 117 (1818.—ex Levaillant : "Brésil").

Nasica longirostris Pelzel, *l.c.* p. 44 (Salto Girao, Borba) ; Hellmayr, *Nouv. Zool.* xiv. p. 367 Humaytha, Borba).

Nos. 88, 522, 725. ♂♂ ad., Calama, 21. vi., 7. ix., 23. x. 1907.—Wing 140—147 ; tail 134—140 ; bill 68—78 mm.

Nos. 534, 583. ♀♀, Jamarýsinho, 10, 21. ix. 1907.—Wing 134, 140 ; tail 128, 136 ; bill 70 mm.

No. 1050. ♀ imm., Maruins, 28. vii. 1908.—Wing 135 ; tail 126 ; bill 70 mm.

"Iris light brown, feet grey, bill yellowish grey or pale grey."

This singular bird is widely distributed in Amazonia and Guiana.

* *Dendrocolaptes Perrotii* Lafresnaye, *Rev. Zool.* vii. p. 80 (1844.—"Colombie") ; *Mag. Zool.* 1844. Oiseaux, pl. 54 ; *Rev. Mag. Zool.* (2) ii. 1850. p. 101 ; Sclater, *Cat. Birds Brit. Mus.* xv. p. 141 (Cayenne).

† Though no species of *Picolaptes* has as yet been discovered in the Madeira Valley, one of the plain-capped forms, *P. fuscicavillus* Pelz. or *P. layardi* Schl., is very likely to occur there.

[192. *Campylorhamphus trochilirostris procurvoides* (Laf.).

Xiphorhynchus procurvoides Lafresnaye, *Rev. Mag. Zool.* (2) ii. p. 376 (1850.—Cayenne).

Xiphornis procurvroides Hellmayr, *Nov. Zool.* xiv. p. 367 (Borba).

X. trochilirostris (nec Licht.) Pelzeln, *l.c.* p. 44 (part. : Borba).

Right bank : Borba (Natterer, Hoffmanns).

Thanks to the courtesy of Dr. von Lorenz, I now have, in addition to the adult female out of Mr. Hoffmann's first Madeira collection, three more specimens from Borba (Natterer coll.) before me, and can state that the supposed differences noticed by me *l.c.* have no real existence. Two of the skins show slight blackish edges to the pale shaft-streaks on the foreneck and chest, but the third (Vienna Museum, No. 15914, ♂ ad., Borba, April 8, 1830) has no traces thereof, agreeing in this respect with the series of *C. t. procurvroides* from Cayenne and British Guiana. The olive tint of the lower plumage is not a constant character either, two of Natterer's examples being even more strongly tinged with rufescent underneath than some of the Guianan ones. Moreover, in all principal points, *i.e.* narrow buff shaft-lines on the head, immaculate dark brown back, deep rufous wings and tail, etc., etc., the Madeira birds are exactly similar to the latter.

The geographical variation of *C. trochilirostris* not having been well understood hitherto, I think, a few words about the conclusions arrived at by studying a large amount of material may be welcome to ornithologists. The following races appear to be easily recognizable :—

(a) *C. trochilirostris trochilirostris* (Licht.).

Dendrocolaptes trochilirostris Lichtenstein, *Abhandl. Akad. Berlin a. d. Jahren 1818-19.* p. 207. pl. iii. (1820.—“in Brasiliæ provincia *Bahia*” ; cf. *l.c.* 1820-21. p. 263).

Hab. Eastern Brazil : Bahia (Sellow, Robert, etc.).

Characters. Back “wood-brown” or “cinnamon-brown” (Ridgw. *Nomencl.* iii. figs. 19, 20), with sharply defined buff or whitish shaft-stripes (never margined with blackish); crown and nape darker “wood-brown,” marked with large, rounded, buff stripes, surrounded by a narrow blackish brown edge at the tip; rump, upper tail-coverts, wings, and tail clear cinnamon-rufous. Throat white, the feathers of the lower portion narrowly fringed with brown; remainder of lower parts pale “wood-” or “cinnamon-brown,” covered with broad, whitish or buff shaft-stripes, laterally never edged with blackish; lower abdomen and under tail-coverts uniform immaculate pale brown. Bill clear red.

Wing 93—102; tail 82—90; bill 58—64 mm.

Material. Twenty specimens from Bahia, only one of them (♂ ad., Lamarão, Bahia, A. Robert coll., No. 1549) sexed.

(b) *C. trochilirostris venezuelensis* (Chapm.).

Xiphorhynchus venezuelensis Chapman, *Bull. Amer. Mus. N.Y.* ii. p. 156 (1889.—Venezuela : types Nos. 2246, 2247 Museum Boston Soc. Nat. Hist.).

Hab. Venezuela : Caicara, Altagracia, on the Orinoco River (Cherrie), Puerto Cabello (Starke, Mus. H. v. Berlepsch), Caracas (Goering), etc. North Brazil : Rio Amajauí, tributary of the Rio Negro, below Barcellos (Natterer).* Colombia : Remedios, Antioquia (Salmon); Bogotá collections, etc. Panama : Lion Hill Station (McLeannan; *vide* Chapman).

* *X. trochilirostris* Pelzeln, *Zur Orn. Bras.* p. 44.—Pelzeln also registers Marabitanas and Barra do Rio Negro, but these specimens are no longer to be found in the Vienna Museum.

Characters. This well-characterized form differs from the preceding one by its longer bill; more heavily as well as more regularly striped throat; darker, nearly blackish crown; considerably darker, olive-brown ground-colour of the back and lower parts; and deeper, chestnut-rufous wings and tail. Bill clear red.

	Wing.	Tail.	Bill.
Three males from the Orinoco	99—102	88—92	70—76 mm.
One imm. female from the Orinoco	92	90	68 "
One adult from Remedios	99	94	— "
Five adults from Bogotá	90—96	80—90	64—73 "
One young male from Rio Amajaú	90	83	62 "

Obs. Colombian birds agree well with those from Venezuela, except that the brown of the under parts is, as a rule, slightly darker, and the rufous of wings and tail rather deeper. These trifling differences, however, should be confirmed by a larger series. Panama specimens I have not seen, but according to Mr. Chapman they are referable to the present race. The single young bird from the Rio Amajaú is much more rufous brown on the lower parts than any other specimen in hand, though in other respects it agrees perfectly with *venezuelensis*. Its bill is apparently not full-grown.

(c) *C. trochilirostris procurvoides* (Lafr.).

Hab. French Guiana: Cayenne (Lafr.), Ipousin, Rio Approuague (Cherrie). British Guiana: Bartica Grove, Camacasa, River Carimang (Whitely), Mazaruni River (Queleh), etc. North Brazil: Borba, Rio Madeira (Natterer, Hoffmanns).

Characters. Above deep "raw umber" (Ridgw. iii. 14), crown and nape with very narrow, buff shaft-lines or small elongated spots; back either wholly immaculate or with a few hair-like, buff lines on the uppermost portion; rufous of rump, wings, and tail even deeper than in *venezuelensis*. Throat strongly varied with deep brown; remainder of lower parts dark raw umber; foreneck and breast with narrow, buff shaft-streaks, not or slightly edged laterally with dusky. Bill considerably darker red than in (a) and (b).

	Wing.	Tail.	Bill.
One female, Ipousin, Cayenne	91	84	60 mm.
Four adults, British Guiana	92—94	88	61—64 "
One adult male, Borba	92	84	61 "
Two adult females, Borba	92, 94	86, 92	60, 62 "
One young male, Borba	88	84	52 "

Obs. This strongly characterized race cannot be confused with any other. Its deep brown coloration, with the pale markings much restricted, and the dark red bill distinguish it at a glance. Judging from the variation shown by the series from British Guiana, I should say that *X. dorsoimmaculatus* Chapm.* is not separable from *C. t. procurvoides*.

(d) *C. trochilirostris thoracicus* (Sc.).

Niphorhynchus thoracicus Sclater, *Proc. Zool. Soc. Lond.* 1860. p. 277 (1860.—Babahoyo, S.W. Ecuador).

Hab. Western Ecuador: Babahoyo, Esmeralda (Fraser), Chimbo (Siemiradzki), Yaguachi (Stolzmann), S. Javier, Paramba, Pambilar (Miketta & Flemming). N.W. Peru: Lechugal (Jelski).

* *Bull. Amer. Mus. N. Y.* ii. p. 159 (1889. — Cayenne?).

Characters. In general coloration not unlike *C. t. venezuelensis*, of Colombia, etc., but easily recognizable by the buff shaft-streaks of the crown, mantle, foreneck, and breast being laterally very distinctly edged with blackish.

	Wing.	Tail.	Bill.
Three adult males from W. Ecuador	100—102	93—99	65—72 mm.
Three females from W. Ecuador	92—95	87—92	65—68 „

(e) *C. trochilirostris lafresnayanus* (D'Orb.).

Dendrocolaptes lafresnayanus D'Orbigny, *Voyage, Oiseaux* p. 368, pl. 53, fig. 2 (1847.—“ Nous l'avons rencontrée dans les îles du rio Paraná, près de Goya, au 29° degré de latitude. Nous l'avons retrouvée ensuite dans la province de Chiquitos (Bolivie). . . .”—The latter locality fixed as *t. typica*.*

Xiphorhynchus rufo-dorsalis Chapman, *Bull. Amer. Mus. N. Y.* ii. p. 160 (1889.—Corumbá, S.W. Mattogrosso).

Hab. E. Bolivia: Chiquitos (D'Orbigny). Western Mattogrosso: Cuyabá (Natterer), Corumbá (Smith, Borelli), Urucúm, Carandasinho (Borelli †). Argentine, Paraná: Goya (D'Orbigny), Ocampo (Venturi).

Characters. Nearest to *C. t. trochilirostris*, but easily recognizable by its larger size, much longer bill, and different coloration. The back is rich ferruginous, of nearly the same colour as the rump and tail, and the under parts are bright tawny ochraceous. The light markings above and below are arranged in a similar way to those of *C. t. trochilirostris*. Bill of the same clear red.

	Wing.	Tail.	Bill.
Three adult males from Cuyabá	108—112	95—105	75—78 mm.
Three adult females from Cuyabá	103—107	90—95	73—80 „
One adult (the type) from Chiquitos	112	95	73 „
Two young males from East Bolivia	102, 110	84, 92½	64 „
Three males from Ocampo, Argentine	111—118	102—105	95—100 „
Two females from Ocampo	102, 106	95, 96	84, 95 „

Obs. Mr. Chapman separated a single unsexed specimen from Corumbá (Mattogrosso), on account of its larger size and fulvous colour of the longitudinal markings, from the Bolivian *lafresnayanus*. With six skins from Mattogrosso (*rufodorsalis*) and three of the latter before me, I fail to see the slightest difference between the two series. The former are certainly not larger, as is evident from the table of measurements given above, and the colour of the pale markings on the head and under parts is subject to seasonal variation. This is well illustrated by the Cuyabá series: in a freshly moulted adult female (June 13) they are bright buff, while two specimens in worn plumage have them nearly whitish. On the other hand, the examples from Ocampo have decidedly longer bills, though in coloration they are not different.]

[193. *Deconychura stictolaema* (Pelz.).

Sittasomus stictolaemus Pelzeln, *Zur Orn. Bras.* i. p. 59 (1867.—Borba); cf. Hellmayr, *Nov. Zoot.* xiv. p. 368 (crit.).

Right bank: Borba (Natterer).

The type of this very distinct species still remains unique in the Vienna Museum. About its affinities see my remarks *loc.*]

* The marked type in the Paris Museum is from Chiquitos.

† Salvadori, *Boll. Mus. Torino* xv. No. 378. 1900. p. 8.

194. *Deconychura longicauda* (Pelz.).

Dendrocincla longicauda Pelzeln, *Zur Orn. Bras.* i. p. 60 (1867.—Borba; Marabitanas and Barra, Rio Negro).

Deconychura longicauda Hellmayr, *Nov. Zool.* xiv. pp. 367, 368 (Borba).

No. 162. ♀ ad., Calama, 3. vii. 1907. "Iris dark brown, feet bluish black, bill black, below greyish."—Wing 97; tail 94; bill 23½ mm.

Slightly smaller than Pelzeln's original examples in the Vienna Museum, but perfectly similar in coloration. The latter measure as follows:—

	Wing.	Tail.	Bill.
1. No. 15907. ♂ ad., Borba, December 29, 1829. <i>Type</i>			
<i>of species</i>	107	107	27 mm.
2. No. 15906. ♂ ad., Barra, May 6, 1833	111	113	27 "
3. No. 15904. ♂ ad., Marabitanas, February 28, 1831	104	102	26½ "
4. No. 15905. ad., Barra, May 4, 1833	102	106	24 "

[195. *Dendrocincla fuliginosa* (Vieill.).

Dendrocopus fuliginosus Vieillot, *Nour. Dict.* xxvi. p. 117 (1818.—ex Levaillant: Cayenne); cf. Ménégau & Hellmayr, *Mém. Soc. d'Hist. Nat. Autun* xix. 1906. p. 119 (crit.).

Dendrocincla fumigata Pelzeln, *l.c.* p. 42 (Borba).

D. fuliginosa Hellmayr, *Nov. Zool.* xiv. p. 368 (Humaytha).

Humaytha (Hoffmanns), Borba (Natterer).

I have examined Natterer's two skins from Borba, and found them to agree with others from Cayenne (cf. *Nov. Zool.* xii. 1905. p. 280). Mr. Oberholser* gives the range of *D. fuliginosa* as: "Lower Amazonia, south to Bahia, north to British Guiana"; but I suppose "Bahia" is a pen-slip for Pará, this being the most southerly established locality on the Brazilian east coast. I have seen specimens from the following localities: Cayenne, French Guiana (the type in the Paris Museum; a second example in Vienna); Roraima, R. Rupunni (H. Whitely; Mns. Berlepsch and Tring); Manaós (Natterer); Diamantina, Tapajóz (topotype of *D. rufo-olivacea* Ridgw.: U. S. Mus. Wash.); Pará (Natterer, Wallace, Steere, Robert, etc.); Borba (Natterer); Humaytha (Hoffmanns). There is considerable individual variation in the series, but I am unable to make out any geographical races.]

196. *Dendrocincla merula* (Licht.).

Dendrocolaptes Merula Lichtenstein, *Abhandl. Akad. Berlin a. d. Jahren* 1818-19. p. 208 (1820.—Cayenne: Mus. Berlin).

Dendrocincla merula Pelzeln, *l.c.* p. 42 (Borba, Salto Theotonio); Hellmayr, *Nov. Zool.* xiv. p. 369 (Humaytha).

Nos. 290, 303. ♂ ad., ♂ imm., Calama, 29, 30. vii. 1907.—Wing 104; tail 87, 89; bill 26 mm.

Nos. 63, 233. ♀ ♀ ad., Calama, 17. vi., 15. vii. 1907.—Wing 99, 100; tail 82; bill 24 mm.

"Iris grey or greyish brown, feet plumbeous, bill black, below grey."

The three adult birds have the lower mandible except the tomiae pale yellow, while in the immature male it is mainly dusky. The Calama series is decidedly larger and darker than a single unsexed Cayenne specimen (S. Laurent-du-Maroni, Le Monlt coll., Munich Museum). However, several examples from Pará, Caura,

* *Proc. Acad. Nat. Sci. Philad.* 1904. p. 453.

etc., agree in the small size with the latter, and the intensity of coloration is subject to much individual variation (cf. *Nov. Zool.* xii. 1905. p. 281).

D. merula is easily distinguishable among its affines by its dark general coloration, by the large whitish patch on the throat, and especially by having the median and greater wing-coverts chestnut-rufous like the remiges. It is widely distributed in Amazonia, being found in Cayenne, British Guiana, on the Orinoco and its tributary the Caura, on the Rio Negro, on the Amazons and its affluents from Pará to the Ucayali.*

197. *Dendrocolaptes hoffmannsi* Hellm.

Dendrocolaptes hoffmannsi Hellmayr, *Bull. B. O. C.* xxiii. p. 66 (1909.—Calama, Allianza : Rio Madeira).

No. 128. ♂ ad., Calama, 29. vi. 1907. "Iris brown, feet plumbeous, bill grey."—Wing 140 ; tail 120 ; bill 37 mm. *Type of species.*

No. 234. ♀ ad., Calama, 15. vii. 1907. "Iris light grey, feet and bill grey."—Wing 141 ; tail 132 ; bill 35 mm.

No. 763. ♀ juv., Allianza, 8. xi. 1907. "Iris brown, feet dark grey, bill black."—Wing 132 ; tail 114 ; bill 36 mm.

♂ ad. Top of the head dull rufescent brown, each feather with a hair-like buff shaft-line, and a very distinct, blackish apical margin ; crown and occiput strongly tinged with cinnameous ; nape and upper back uniform rufescent brown, most of the feathers with a hair-like buff shaft-line ; rump and upper tail-coverts deep cinnamon-rufous. Upper wing-coverts uniform brown like the back, those of the greater series tinged with rufous on the inner web. Remiges deep cinnamon-rufous, the outer primaries dusky at the tip and slightly edged with olivaceous along outer web. Rectrices deep cinnamon-rufous, with the shafts nearly blackish. Lores grey, with pale shaft-lines. Cheeks, auricular and temporal regions buff, the feathers edged with brown or blackish ; above the eye a narrow line of buff spots, edged with dark brown ; sides of the neck dull olive-brown, narrowly streaked with buff. Chin dingy greyish buff ; throat and foreneck dull olive-brown, each feather with a very distinct (about 1 mm. wide) longitudinal streak of buff, bordered laterally by an irregular dusky line, or by a number of rather indistinct dusky dots ; remainder of lower parts dull ochreous brown, each feather crossed by three very distinct, though narrow, dusky lines. Axillaries, under wing-coverts, and edge of the wing orange-buff, regularly barred with dusky. Bill : upper mandible blackish, lower one horn-colour, dingy yellowish at the base.

The female differs by having fewer or no pale shaft-lines on the upper back, and by the markings of the throat and foreneck being less clearly defined. The young bird is rather more reddish on the back and more ochreous on the belly than the adults.

This new species belongs undoubtedly to the group of *D. pallescens* Pelz.† and *D. plagosus* Salv. & Godm.‡ ; it is, however, quite distinct from either of them. With the former it agrees notably in the uniform (not cross-banded) back and upper wing-coverts, as well as in the pattern of the pileum, etc. ; but *D. pallescens* has no cinnameous tinge about the head, the blackish apical edges are much less conspicuous and nearly obsolete on the hind-crown, while the much broader

* Sarayaçu, Castelnau coll. in Paris Museum.

† *Zur Orn. Bras.* i. pp. 43, 61 (1867.—Estiva and Engenho do Gama, Western Mattogrosso).

‡ *Ibis* 1883. p. 210 (Camacusa, Brit. Guiana).

buff shaft-lines of the throat and foreneck extend also over the chest, etc. Moreover, the bill is somewhat flatter, less compressed terminally, and paler in colour, being mostly horny whitish. *D. plagosus* shares with *D. hoffmannsi* the shape and colour of the bill, but differs widely in coloration. The pileum is clear olive-brown with broad, buffish shaft-stripes, which are, laterally and terminally, bordered with blackish; the back, lesser and median wing-coverts show more or less distinct dusky cross-lines; the buff throat-feathers have, on each side, several marginal spots of dusky; finally, the chest, breast, and abdomen are much more broadly and more regularly banded with blackish.

[198. *Dendrocolaptes certhia concolor* Pelz.

[*Picus Certhia* Boddaert, Tabl. Pl. enl. p. 38 (1783.—based on D'Aubenton, Pl. enl. 621: "Le Picucule, de Cayenne").]

Dendrocolaptes concolor Pelzel, *Zur Orn. Bras.* i. pp. 43, 62 (1867.—Villa Bella de Matogrosso; Salto do Girao and Borba).

Rio Madeira: Salto do Girao, Borba (Natterer). Not obtained by Mr. Hoffmanns.

The typical series, kindly lent by Dr. von Lorenz, differ from a very large suite of *D. c. certhia*, from North Brazil, Cayenne, Guiana, and Venezuela, by lacking the dusky cross-bands on the back and upper wing-coverts; the under parts are nearly uniform ochreous brown, with but a few obsolete cross-lines in the middle of the abdomen; the feathers of the pileum pale olive-brown, indistinctly edged with dusky at the tip, while in *D. c. certhia* they are alternately banded with olive-brown and blackish. The bill is dark red, as in *D. c. certhia*.

On the Tapajóz a nearly allied form, *D. c. ridgwayi* Hellm.,* is met with. It has lately been rediscovered at Villa Braga and Itaituba, on the left bank of that river.†]

199. *Cymbilanius lineatus lineatus* (Leach).

Lanius lineatus Leach, *Zoolog. Misc.* i. pl. vi. p. 20 (1814.—Berbice, British Guiana).

Cymbilanius lineatus Pelzel, *Zur Orn. Bras.* p. 74 (Borba).

C. l. lineatus Hellmayr, *Nor. Zool.* xiv. p. 368 (Humaytha, Paraíso, Borba).

Nos. 331, 397. ♂♂ ad., Calama, 5, 15. viii. 1907.—Wing 73, 74; tail 68, 70; bill 22 mm.

No. 794. ♂ ad., Allianca, 19. xi. 1907.—Wing 75; tail 70; bill 22 mm.

No. 765. ♀ ad., Allianca, 8. xi. 1907.—Wing 76; tail 69; bill 22 mm.

"Iris red, feet plumbeous or blackish, bill black, below grey."

Identical with Cayenne skins. Distributed all over the great Amazonian forest region from Cayenne and Guiana to the eastern slopes of the Andes. In N.W. Ecuador, Western Colombia, and southern Central America it is replaced by a closely allied race, *C. lineatus fasciatus* Ridgw.

200. *Thamnophilus major borbæ* Pelz.

[*Thamnophilus major* Vieillot, *Nouv. Dict.* iii. p. 313 (1816.—ex Azara: Paraguay).]

Thamnophilus borbæ Pelzel, *Zur Orn. Bras.* ii. p. 140 (1868.—Borba).

T. major borbæ Hellmayr, *Nor. Zool.* xiv. 1907. p. 369 (Humaytha, Borba).

No. 395. ♂ ad., Calama, 15. viii. 1907.—Wing 90; tail 72; bill 23½ mm.

No. 539. ♂ ad., Jamarysinho, 12. ix. 1907.—Wing 93; tail 77; bill 25 mm.

* *Nor. Zool.* xii. p. 282 (1905.—Diamantina, Santarem).

† *D. concolor ridgwayi* Sneath, *Journ. f. Orn.* 1908. p. 509.

Nos. 743, 793, 538. ♀ ♀, Calama, 1. xi. 1907; Allianca, 19. xi. 1907; Jamary-sinho, 12. ix. 1907.—Wing 87—92; tail 71—74; bill 24—25 mm.

“Iris red, feet plumbeous, bill black.”

The males have rather more white in the tail than a series from Borba and Humaytha, the two (in No. 395 the three) outer rectrices of each side showing a distinct white apical margin and several white spots or bands on their inner web. They form the transition to *T. m. semifasciatus* (Cab.), in which, however, the white markings are more numerous (about eight to ten on each feather) and much more regular. A specimen from Itaitúba, left bank of the Tapajóz (cf. *Nov. Zool.* xiv. p. 16), is intermediate between *semifasciatus* (from Pará, Guiana, etc.) and the examples from the Rio Machados.

T. m. borbae inhabits both banks of the Rio Madeira, but is not known to occur elsewhere.

[201. *Thamnophilus nigrocinereus tschudii* Pelz.

Thamnophilus tschudii Pelzelin, *Zur Orn. Bras.* ii. p. 141 (1868.—Borba, Rio Madeira).

Right bank: Borba (Natterer). Not obtained by Mr. Hoffmanns.

Occurs also on the Peruvian Amazons (Iquitos, Nanta), whence I have seen specimens in the British Museum and in Count Berlepsch's collection.

T. nigrocinereus, *T. cinereoniger*, *T. huberi*, and *T. tschudii* are mere geographical representatives of the same type, hence more properly designated by trinomials. The last-named form is slightly more differentiated than the three others, yet sufficient evidence of intergradation is furnished by a series of adult males as shown below. In the following lines a condensed review of the distinguishing characters, together with the principal synonymy and a short account of the range of the four races, is given, which, it is hoped, may aid naturalists in the determination of these scarce birds.

(a) *T. nigrocinereus nigrocinereus* Sel.

Thamnophilus nigrocinereus Selater, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 19. pl. lxxxi (1855.—Pará); Selater & Salvin, *P. Z. S.* 1867. p. 575 (Rio Tocantins, Mexiana); Selater, *Cat. Birds Brit. Mus.* xv. p. 194 (Lower Amazons); Hagmann, *Zoolog. Jahrb., Abt. Syst., etc.* xxvi. 1907. p. 33 (Mexiana); Snethlage, *Journ. f. Orn.* 1907. p. 283 (Mexiana, Marajó, Pará).

T. cinereoniger (error! nec Pelz.) Snethlage, *Journ. f. Orn.* 1907. p. 283 (Marajó, Monte Alegre).

Hab. N.E. Brazil: Pará (Snethlage, etc.), Rio Tocantins (Wallace), Mexiana (Wallace, Hagmann), Marajó (Snethlage), Monte Alegre (Snethlage).

♂ ad. Pileum, mantle, sides of head, throat, and foreneck sooty black, the pileum somewhat glossy; feathers of upper back largely white at base, some of them with slaty margins; lower back and rump slate-grey, abruptly contrasted with black of mantle; upper tail-coverts black with narrow white apical edges; upper wing-coverts black, each feather with a distinct white apical margin. Remiges and rectrices black, narrowly edged with white, the former exteriorly, the latter at the tip. Breast, abdomen, and under tail-coverts clear slate-grey.

Wing 78—82; tail 58—62 mm.

♀ ad. Pileum dull sooty blackish, most of the feathers indistinctly edged with slate-grey; back pale rufescent olive-brown; feathers of upper back extensively white at base; wing-coverts dusky with cinnamon-brown margins; remiges and rectrices dusky, slightly edged with rufescent brown, the outer tail-feathers

sometimes with a narrow, rusty buff apical margin. Lores, cheeks, and ear-coverts dull dark slate-grey. Lower parts clear ferruginous, throat palest, foreneck and breast darkest, flanks tinged with brownish.

Wing 77—80 ; tail 60—64 mm.

Obs. Miss Snethlage (*l.c.* pp. 283-4) records both *T. nigrocinereus* and *T. cinereoniger* from Marajó (S. Natal) and Monte Alegre, under the erroneous supposition that the specimens without the white mark on the outer web of the external rectrix represent the former "species." At my request, the learned lady sent me some of these examples. I found that the presence or absence of the white spot was a purely individual character, and that all skins from Lower Amazonia (except those obtained on the Tapajóz) were unquestionably referable to *nigrocinereus*, having the head all round, foreneck and mantle black, etc.

(b) *T. nigrocinereus huberi* Snethlage.

Thamnophilus huberi Snethlage, *Orn. Monber.* xv. p. 161 (1907.—Ilha de Goyana, Rio Tapajóz); *eadem*, *Journ. f. Orn.* 1908. p. 509 (Goyana).

T. cinereoniger (nec Pelzel) Pelzel, *Zur Orn. Bras.* ii. 1868. p. 76 (part. : Tapajóz).

T. nigrocinereus (nec Selater) Chapman & Riker, *Auk* 1891. p. 28 (Santarem).

Hab. Lower Amazonia, Rio Tapajóz : Santarem (Natterer, Smith), Ilha de Goyana (Snethlage).

♂ ad. Agrees with the preceding form in having the top and sides of the head as well as the mantle black, the latter conspicuously contrasted with the slate-grey of the rump, but the throat is slate-grey like the rest of the under surface, and the under tail-coverts are broadly tipped with white.

Type : wing 82 ; tail 67 mm.

♀ ad. Differs from *T. n. nigrocinereus* by its darker, deep sooty black, slightly glossy pileum, deeper grey sides of the head, and by having the edges to the upper wing-coverts, remiges, and rectrices much darker rufous brown.

Wing 78½—80 ; tail 62—64 mm.

Obs. The female type of *T. huberi* is considerably darker cinnamon-rufous below than either *T. n. nigrocinereus* or *T. n. cinereoniger*, but a second specimen from the Tapajóz (coll. Natterer) does not differ in that respect from its allies. Otherwise it is practically identical with the Goyana female. I am greatly indebted to Miss Snethlage for the loan of the typical examples.

(c) *T. nigrocinereus cinereoniger* Pelz.

Thamnophilus cinereoniger Pelzel, *Zur Orn. Bras.* ii. pp. 143 (1868.—near Airão, Marabitanas, Rio Vaupé, R. Amajáu : Rio Negro); Berlepsch & Hartert, *Nor. Zool.* ix. 1902. p. 69 (Munduapo, Maipures, Altagracia : Upper Orinoco, Venezuela).

Hab. N.W. Brazil, Rio Negro district : Airão, Marabitanas, Rio Vaupé, Rio Amajáu (Natterer). Venezuela, Upper Orinoco : Munduapo, Maipures, Altagracia (Cherrie).

♂ ad. Differs from the preceding races by having the cap decidedly duller blackish ; the mantle mainly sooty grey, clouded with dusky ; the sides of the head dark grey (not blackish) ; the lower parts of a clearer slate-grey. Under tail-coverts tipped with white as in *T. n. huberi*.

Wing 78—81 ; tail 60—64 mm.

♀ ad. Agrees with *T. n. nigrocinereus* in the colour of the top and sides

of the head, but the back is darker rufescent] brown, and wings and tail are more like *T. n. huberi*, though the coloration of these parts is rather variable.

Wing 75—80; tail 58—63 mm.

Obs. Specimens from the Orinoco (fourteen examined) agree perfectly with the typical series in the Vienna Museum.

(d) *T. nigrocinereus tschudii* Pelz.

Thamnophilus tschudii Pelzeln, l.c. pp. 76, 141 (1868.—Borba, Rio Madeira); Sclater, *Cat. Birds Brit. Mus.* xv. p. 191 (Borba; Iquitos, N. Peru).

Hab. North Brazil: Borba, Rio Madeira (Natterer). North Peru: Iquitos (H. Whitely), Nauta (Hauxwell).

♂ ad. Differs from all the preceding races by having the whole back from the forehead to the rump uniform black. White dorsal patch, wings and tail as in its allies. The coloration of the under parts is rather variable, as shown by a series from Borba in the Vienna Museum. Two have the throat only black, the rest of the belly slate-grey, exactly as in *T. n. nigrocinereus*, though the abdomen is slightly darker; in two others throat and foreneck are black, breast and abdomen sooty blackish, while the fifth specimen has all the lower surface uniform deep black.

Wing 79—82; tail 62—65 mm.

♀ ad. Cap deep sooty black as in *T. n. huberi*, but the sides of the head **and the throat** are sooty blackish, the breast and abdomen dark rufous brown, wings and tail considerably darker, and the back is chestnut-brown.

Wing 75—77; tail 59—60 mm.

Obs. An adult male from Nauta (Hauxwell coll., September 9, 1880; Mus. H. v. Berlepsch) agrees well with those from Borba.]

[202. *Thamnophilus aethiops polionotus* Pelz.

Cf. Nov. Zool. xiv. 1907. p. 369 (Humaytha).

Left bank of the Rio Madeira: Humaytha (Hoffmanns).]

203. *Thamnophilus aethiops punctuliger* Pelz.

[*Thamnophilus aethiops* Sclater, *Proc. Zool. Soc. Lond.* xxvi. 1858. p. 65 (1858.—Rio Napo, Eastern Ecuador).]

T. punctuliger Pelzeln, *Zur Orn. Bras.* ii. p. 146 (1868.—Borba, Rio Madeira).

No. 346. ♂ ad., Calama, 7. viii. 1907.—Wing 76; tail 61; bill 19 mm.

Nos. 106, 289, 333, 455. ♀♀, Calama, 25. vi., 29. vii., 5, 26. viii. 1907.—Wing 72—76; tail 56—61; bill 18—19 mm.

No. 792. ♀ ad., Allianca, 19. xi. 1907.—Wing 75; tail 58; bill 19 mm.

No. 964. ♀ ad., Marnins, 30. vi. 1908.—Wing 73½; tail 59; bill 18 mm.

The adult male is identical with Pelzeln's type in the Vienna Museum. Both have a distinct, concealed, white interscapular patch, and the lesser and median upper wing-coverts conspicuously tipped with white, while those of the greater series are either uniform dusky or show but slight traces of apical spots.

The females, the first on record, are very similar to those of *T. a. polionotus*, but the sides of the head as well as the throat are rather lighter ferruginous, and the belly is somewhat paler. Some come very near *T. a. incertus*, while the one from Marnins, the darkest of all, is scarcely distinguishable from *polionotus*.

T. aethiops, *T. juruanus*, *T. polionotus*, *T. punctuliger*, and *T. incertus* are

evidently geographical races of the same "Formenkreis." The males differ from each other only in intensity of coloration and in the amount of white spotting, and the females are even less different.

Their ranges and characters may be summarized as follows :—

(a) *T. aethiops aethiops* Schl.

Thamnophilus aethiops Slater, *P. Z. S. Lond.* xxvi. p. 65 (1858.—Rio Napo, Eastern Ecuador); *l.c.* p. 457 (Zamora); *Cat. Birds Brit. Mus.* xv. p. 190 (Eastern Ecuador); Salvadori & Festa, *Boll. Mus. Torino* xiv. No. 362. 1899. p. 27 (Zamora); Goodfellow, *Ibis* 1902. p. 64 (Coca, Rio Napo).

Hab. Eastern Ecuador: Coca, Upper Napo (Goodfellow), Sarayaqu (Buckley), Zamora (Fraser, Festa).

♂ ad. Deep black with slight gloss; bend and edge of the wing and under wing-coverts speckled with white.

Wing 74; tail 60 mm.

♀ ad. Upper parts deep chestnut-brown; rectrices blackish edged with deep chestnut. Sides of head like the back, under parts somewhat lighter chestnut. Axillaries orange, quill-lining pale rufous buff.

Wing 74—76; tail 60—64 mm.

(b) *T. aethiops polionotus* Pelz.

T. polionotus Pelzel, *Zur Orn. Bras.* ii. p. 147 (1868.—Marabitanas, Barcellos, Rio Negro).

T. tristis Slater & Salvin, *Nomencl. Av. Neotrop.* p. 160 (1873.—Oyapoc, Cayenne); Hellmayr, *Nov. Zool.* xiii. 1906. p. 338 (crit.).

T. sp. inc. Berlepsch & Hartert, *Nov. Zool.* ix. 1902. p. 69 (La Pricion, Nicare, Venezuela).

Hab. Venezuela: Nicare, La Pricion, Caura River. French Guiana: Oyapoc. North Brazil: Marabitanas, Barcellos, on the Rio Negro (Natterer), Humaytha, left bank of Madeira (Hoffmanns).

♂ ad. General colour plumbeous, cap blackish; bend of the wing spotted with white, all the upper wing-coverts with well-defined white apical spots.

Wing 73—76; tail 59—61 mm.

♀ ad. General colour paler, more rufous brown than in *T. a. aethiops*, and tail also rufous brown (instead of blackish).

Wing 72—75; tail 58—64 mm.

Obs. For synonymy cf. *Nov. Zool.* xiii. pp. 338-9. The male from Humaytha is slightly paler plumbeous than those from Marabitanas, Oyapoc, and Caura, but does not otherwise differ.

(c) *T. aethiops juruanus* Ihering.

Thamnophilus juruanus Ihering, *Rev. Mus. Paul.* vi. 1904. p. 439. pl. xvi. fig. 1 (1905.—Rio Jurua); Sneath, *Journ. f. Orn.* 1908. p. 15 (Monte Verde, Rio Purús).

Hab. West Brazil: Rio Jurua (Garbe); Monte Verde, on the River Purús (Sneath).

♂ ad. Exactly like the preceding form, but median and greater wing-coverts uniform blackish (not tipped with white), and general coloration rather clearer plumbeous.

Wing 75—79; tail 61—63 mm.

♀. Unknown.

Obs. *T. a. juruanus* has, like *T. a. polionotus*, the cap blackish, small white

spots on the lesser wing-coverts, and the bend of the wing speckled with white. In addition to the two typical specimens, I have examined an adult male obtained on the Rio Purús and belonging to the Museu Goeldi, Pará.

(d) *T. aethiops punctuliger* Pelz.

Thamnophilus punctuliger Pelzeln, *Zur Orn. Bras.* ii. p. 146 (1868.—Borba); Hellmayr, *Nov. Zool.* xiii. 1906. p. 339 (crit.); Snethlage, *Journ. f. Orn.* 1908. p. 509 (Villa Braga).

Hab. North Brazil: Borba (Natterer), Calama, Allianca, Maruins (Hoffmanns), right bank of the Rio Madeira; Villa Braga, left bank of the R. Tapajós (Snethlage).

♂ ad. Agrees with *T. a. juruanus* in the clear plumbeous general coloration and blackish cap, but the median (as well as lesser) wing-coverts have white apical spots, and there is a distinct white interscapular patch.

Wing 76, 77; tail 60, 61 mm.

♀ ad. Very similar to *T. a. polionotus*, but averaging lighter.

Wing 72—76; tail 56—61 (see above).

(e) *T. aethiops incertus* Pelz.

Thamnophilus incertus Pelzeln, *Zur Orn. Bras.* ii. p. 149 (1868.—Pará), descr. orig. ♀; Hellmayr, *Nov. Zool.* xiii. 1906. p. 367 (Prata, Pará).

Dysithamnus incertus Hellmayr, *Nov. Zool.* xii. 1905. p. 284 (crit.; Igarapé-Assú, Pará).

Thamnophilus simplex Selater, *Ibis* 1873. p. 387. pl. 15, descr. orig. ♂ ♀ (Pará); Selater & Salvin, *P. Z. S. Lond.* 1878. p. 139 (Vigia, Pará); Snethlage, *Journ. f. Orn.* 1907. p. 283 (Pará, S. Antonio do Prata, Resacca [Rio Capim], Sta. Maria de S. Miquel [Rio Guamã]).

T. polionotus? Snethlage, *Journ. f. Orn.* 1907. p. 284 (Pará, Rio Capim).

Hab. N.E. Brazil, Pará District: Pará (Layard, Natterer, etc.), Vigia (Steere), S. Antonio do Prata = Igarapé-Assú (Robert, Hoffmanns, Snethlage), Resacca, on the R. Capim (Snethlage), Sta. Maria de S. Miquel, on the Rio Guamã (Snethlage).

♂ ad. Differs from the preceding races by its lighter, slate-grey coloration, and by lacking the blackish cap and the white apical spots to the upper wing-coverts, only the bend of the wing being freckled with white. Wings and tail are shorter.

Wing 68—73; tail 55—60 mm.

♀ ad. Differs from *T. a. polionotus* and *T. a. punctuliger* by having the back paler rufous brown, the sides of the head and throat clearer ferruginous, and the belly of a paler tint, varying from ochraceous to fulvous.

Wing 66—71; tail 55—61 mm.

Obs. I have examined the two females named *T. polionotus*? by Miss Snethlage and found them identical with Pelzeln's type.

204. *Thamnophilus amazonicus* Sel.

Thamnophilus amazonicus Selater, *Proc. Zool. Soc. Lond.* xxvi. 1858. p. 214. pl. 139. figs. 1, 2 (1858.—"Upper Amazons"); Pelzeln, *l.c.* p. 77 (Borba, Salto do Girao, Rio Madeira; Eugenio do Gama, Rio Guaporé); Hellmayr, *Nov. Zool.* xiv. p. 370 (Borba).

No. 656. ♂ ad., S. Isabel, Rio Preto, 9. x. 1907.—Wing 72; tail 62; bill $17\frac{3}{4}$ mm.

No. 620. ♀ ad., S. Isabel, 4. x. 1907.—Wing 68; tail 58 mm.

Nos. 244, 513. ♀ ♀ ad., Calama, 19. vii., 5. ix. 1907.—Wing 69; tail 59, $56\frac{1}{2}$; bill $16\frac{1}{2}$, 17 mm.

No. 911. ♀ ad., Marnins, 7. vi. 1908.—Wing 68; tail $57\frac{1}{2}$; bill $17\frac{1}{2}$ mm.

"Iris brown, feet plumbeous, bill black."

Agreeing well with examples from Pará and Maranhão. *T. amazonicus* and *T. cinereiceps* Pelz.,* from the Upper Orinoco and Rio Negro, are so very nearly allied (the females differ merely in size) that one would naturally expect them to be geographical representatives, but both are said to occur in French Guiana.† All the examples I have examined from this country were, however, clearly referable to *T. amazonicus*, and the record of *T. cinereiceps* appears to be open to doubt.

205. *Thamnophilus doliatus subradiatus* Berl.

[*Lanius doliatus* Linnaeus, *Mus. Adolphi Frid. II. Prodrum*, p. 12 (1764.—loc. ign.; we substitute Surinam).]

Thamnophilus subradiatus Berlepsch, *Journ. f. Orn.* 1887. p. 17 (Upper Amazonia: the type in Mus. H. v. B. is from Iquitos, N.E. Peru).

T. doliatus subradiatus Hellmayr, *Nov. Zool.* xiv. 1907. p. 370 (Humaytha).

No. 430. ♂ ad., Calama, 19. viii. 1907.—Wing 74; tail 65; bill 19 mm.

No. 820. ♂ juv., Marmellos, 17. xii. 1907.

Nos. 621, 670. ♀ ♀ ad., S. Isabel, Rio Preto, 4, 16. x. 1907.—Wing 71, 74; tail 58, 60; bill $18\frac{1}{2}$, 19 mm.

"Iris yellowish white or pale yellow, feet light plumbeous, bill black (♂), dark grey (♀)."

This form ranges from Northern Peru through Western Brazil to the Rio Madeira, where it is found on both sides.

206. *Dysithamnus schistaceus schistaceus* (D'Orb.).

Thamnophilus schistaceus D'Orbigny, *Voyage, Oiseaux* p. 170 (1838.—Yuracarès, Bolivia); Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 77 (Salto do Girao, Borba).

Dysithamnus s. schistaceus Hellmayr, *Nov. Zool.* xiv. 1907. p. 370 (Humaytha, Borba).

D. capitalis (nec Sclater) Snethlage, *Journ. f. Orn.* 1908. p. 510 (Villa Braga, Tapajóz—♀, examined by me).

Nos. 22, 41, 52, 199. ♂♂ ad., Calama, 11, 14, 16. vi. 10. vii. 1907.—Wing 62—65; tail 51—54; bill 16—17 mm.

No. 353. ♂ imm., Calama, 8. viii. 1907.—Wing 63; tail 55; bill 17 mm.

Nos. 634, 714. ♂♂ ad., S. Isabel, Rio Preto, 7, 17. x. 1907.—Wing 65, 62; tail 54, 50; bill 17 mm.

No. 871. ♂ ad., Marmellos, 26. xii. 1907.—Wing 63; tail 50; bill 17 mm.

No. 633. ♀ ad., S. Isabel, 7. x. 1907.—Wing 64; tail 54; bill $16\frac{1}{2}$ mm.

No. 1053. ♀ ad., Marnins, Machados, 22. vii. 1908.—Wing 65; tail 55; bill 17 mm.

"Iris red, feet plumbeous, bill black, below grey."

The series agrees with specimens from the Rio Purús and Tapajóz. Some of the adult males are uniform cinereous below, others have the middle of the belly variegated with whitish. In most of them the pileum is uniform slate-grey; but two specimens (Nos. 22, 52) approach the newly described *D. capitalis squamosus* Snethl.,‡ from the left bank of the Tocantins, in having the feathers of the cap distinctly centred with black, though to a lesser degree than in the type kindly lent by Miss Snethlage. This form is, of course, more nearly related to *D. s. schistaceus*

* *Zur Orn. Bras.* ii. p. 145 (1868.—Marabitanas and Rio Uaupé, Rio Negro).

† Cf. *Cat. Birds Brit. Mus.* xv. pp. 199, 201.

‡ *Ornith. Monatster.* xv. Oct. 1907. p. 162 (Alcobaça, left bank of Tocantins).

than to *D. s. capitalis*, and should be called *D. schistaceus squamosus* Snethl. if really distinct. The female is not distinguishable from *schistaceus*. See also *Nov. Zool.* xiv. 1907. pp. 61-3, where a review of these birds is given.

A nest containing two eggs was taken at S. Isabel, together with the parent bird (No. 633), on October 7, 1907. It is a small, loose structure of dry leaves, roots, and stems of various plants, without a particularly soft lining, fastened on a forked branch like an oriole's nest (*Oriolus galbula*). The eggs, which resemble those of the Red-backed Shrike (*Lanius collurio*), are creamy white, mottled and blotched with chocolate and underlying pale lavender, the chocolate markings being crowded around the thicker end. The eggs measure 21×15 , $20 \times 15\frac{1}{2}$ mm.

[207. *Dysithamnus murinus* (Scl. & Salv.).

Thamnophilus murinus (Natterer MS.) Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1867. p. 756 (1867.—Cayenne; Marabitanas and Barra do Rio Negro; Xeberos.—We accept Barra do Rio Negro as typical locality).

Dysithamnus murinus Hellmayr, *Nov. Zool.* xiv. p. 371 (Humaytha).

Left bank: Humaytha (Hoffmannus).]

208. *Dysithamnus ardesiacus saturninus* (Pelz.).

[*Dysithamnus ardesiacus* Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1867. p. 756 (1867.—based on *T. schistaceus* (nec D'Orbigny) Sclater, *P. Z. S.* 1858. pp. 66, 222.—Rio Napo, Eastern Ecuador).]

Thamnophilus saturninus Pelzeln, *Zur Orn. Bras.* ii. p. 147 (1868.—Borba fixed as typ. habitat; cf. Hellmayr, *Verhandl. Zool. Bot. Ges. Wien* liii. 1903. p. 216).

D. a. saturninus Hellmayr, *Nov. Zool.* xiv. p. 371 (Borba).

Nos. 51, 370. ♂♂ vix ad., Calama, 16. vi., 11. viii. 1907.—Wing 72, 76; tail 57, 59; bill 17, 18 mm.

No. 984. ♂ vix ad., Maruins, 9. vii. 1908.—Wing 73; tail 55; bill 17 mm.

No. 786. ♂ juv., Allianca, 14. xi. 1907.—Wing 74; tail 58; bill $17\frac{1}{2}$ mm.

Nos. 279, 356. ♀♀, Calama, 27. vii., 8. viii. 1907.—Wing 77, 79; tail 57, 63; bill 19 mm.

"Iris brown or grey, feet plumbeous (black), bill black."

The males have the throat and middle of the foreneck deep black. The outer rectrices are conspicuously edged with white at the tip. Some have scarcely more white at the base of the interscapular feathers than examples from British Guiana, Venezuela, etc., but average slightly larger with longer tail. Cf. my remarks in *Nov. Zool.* xiv. p. 371, and in *Verhandl. Zool. Bot. Gesellsch. Wien* liii. 1903. pp. 216-7.

209. *Thamnomanes caesius persimilis* Hellm.

[*Muscicapa caesia* Temminck, *Rec. Pl. col.* livr. 3. tab. 17. figs. 1, 2 (October 1820.—South-East Brazil; cf. *Nov. Zool.* xii. p. 285).]

Thamnomanes caesius persimilis Hellmayr, *Nov. Zool.* xiv. p. 64 (1907.—Teffé, Rio Solimões); idem, *l.c.* p. 371 (Humaytha).

T. caesius (nec Temminck), Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 80 (Salto do Girão); Ihering, *Revis. Mus. Paulist.* vi. 1905. p. 440 (Rio Jurua).

T. caesius glaucus (nec Cabanis) Hellmayr, *Nov. Zool.* xiv. 1907. p. 17 (Itaituba, Rio Tapajóz—♀, examined by me).

T. caesius hoffmannsi (nec Hellmayr) Snethlage, *Journ. f. Ornith.* 1908. p. 510 (Bella Vista, Villa Braga: Rio Tapajóz); eadem, *l.c.* p. 531 (Arumatheua, R. Tocantins).

Nos. 193, 361. ♂♂ ad., Calama, 8. vii., 9. viii. 1907. "Iris brown or greyish brown, feet and bill black."—Wing 74, 71; tail 64, 65; bill $16\frac{1}{2}$, 17 mm.

No. 1071. ♀ ad., Calama, 10. ix. 1908. "Iris brown."—Wing 72; tail 63; bill 17 mm.

No. 1049. ♂ ad., Maruins, Machados, 22. vii. 1908. "Iris brown."—Wing 70; tail 61; bill 16 mm.

The males agree in every way with those from Tefé and Humaytha. All have the under wing-coverts and the quill-lining broadly white; in none is there any white at the base of the interscapular feathers. The female differs slightly from Venezuelan specimens of *T. c. glaucus* by having the throat rather browner and mixed with deep buff, and the under mandible brown instead of whitish. Breast and abdomen, too, are a shade deeper ferruginous. Like *T. c. glaucus*, it has a large concealed white dorsal patch.

I have examined the specimens from Salto do Girao (Mus. Vindob.) and Rio Jurua (Mus. Paulista)—in both cases males only were obtained—and found them to belong to *persimilis*. Miss Snelhage informs me (*in litt.*) that the bird recorded s.n. *T. c. hoffmannsi* (*vide supra*) likewise turns out to be *persimilis*.

The range of *T. c. persimilis* is therefore as follows:

North Brazil: Tefé, Rio Solimões (Hoffmanns); Rio Madeira: Salto do Girao (Natterer), Humaytha, Calama, Maruins, Rio Machados (Hoffmanns); Rio Jurua (Garbe); R. Tapajóz, left bank: Itaituba (Hoffmanns), Villa Braga (Snelhage); right bank: Bella Vista (Snelhage); Arumatheua, left bank of the R. Tocantins (Snelhage).*

210. *Pygiptila margaritata* (Sch.).

Myrmeciza margaritata Selater, *Proc. Zool. Soc. Lond.* xxii. 1854. p. 253. pl. lxxi. (April 1855.—Chamicuro, Eastern Peru).

Nos. 96, 248, 328. ♂♂ ad., ♂ vix ad., Calama, 23. vi., 22. vii., 2. viii. 1907.—Wing 73, 70; tail 48, 49; bill 16—17½ mm. "Iris dirty white, feet light plumbeous, bill black, below greyish blue."

Nos. 97, 345, 362, 368. ♀♀, Calama, 23. vi., 7, 10, 11. viii. 1907.—Wing 67—69; tail 45—47; bill 16¾—17½ mm. "Iris dirty white, feet light plumbeous, bill black, below grey."

The specimens differ from topotypical Peruvian examples by their rather shorter, broader bill. The males have, too, the under wing-coverts uniform dark grey, not mixed with white, and the females are decidedly paler rufescent brown on the back. These trifling differences are, however, not likely to be constant.

P. margaritata is for the first time recorded from the Madeira district. Previously it was only known from Eastern Peru, where Bartlett and Huxwell had obtained specimens at Xeberos and Chamicuro, and from Marabitanas, on the upper Rio Negro, whence Natterer sent a series to the Vienna Museum.

211. *Pygiptila stellaris* (Spix).

Thamnophilus stellaris Spix, *Av. Bras.* ii. p. 27. pl. xxxvi. fig. 2, descr. orig. ♂ (1825.—Pará). *T. maculipennis* Selater, *Edin. New Philos. Journ.* (new ser.) i. p. 247 (1855.—"Quixos in Cisandean Ecuador and Peruvian Amazons").

Pygiptila maculipennis Pelzel, *Zur Orn. Bras.* ii. p. 79 (Salto do Girao, Borba).

Nos. 350, 372. ♂♂ vix ad., Calama, 9, 11. viii. 1907.—Wing 79, 76; tail 39½, 41; bill 18½, 21 mm.

Nos. 93, 213, 360, 371, 419. ♀♀ ad. et imm., Calama, 22. vi., 12. vii., 9, 11, 18. viii. 1907.—Wing 74—76; tail 38—40; bill 19—20½ mm.

* Specimens from the Upper Purús are, however, referable to a new form, related to *T. c. glaucus* Cab.

Identical with Peruvian and Venezuelan (Canra) specimens.

P. stellaris ranges all over the great Amazonian forest region, from Surinam, Cayenne, and Pará to the eastern slopes of the Andes in Ecuador and Peru. Notwithstanding this wide area I cannot make out any local races.

212. *Myrmotherula pygmaea* (Gm.).

Muscicapa pygmaea Gmelin, *Syst. Nat.* 1. ii. p. 933 (1789.—ex D'Aubenton, Pl. enl. 831. fig. 2 : Cayenne).

Myrmotherula pygmaea Pelzeln, *l.c.* p. 80 (Gujariguacu, Rio Mamoré); Hellmayr, *Nov. Zool.* xiv. p. 382 (Borba, Humaytha).

No. 844. ♂ imm., Marmellos, 21. vii. 1907.—Wing 42; tail 19; bill 13 mm.

Nos. 77, 293. ♀ ad., (♂) imm., Calama, 19. vi., 29. vii. 1907.—Wing 40, 44; tail 18, 21; bill 13, 15 mm.

"Iris brown, feet light green or pale plumbeous, bill black, below grey."

Within Brazilian limits *M. pygmaea* does not seem to have been met with east of the Madeira basin, although, in the north of the South American continent, it ranges as far as French Guiana. The Munich Museum possesses a large series from Cayenne, Venezuela (Canra Valley), Eastern Ecuador (Napo), and Bogotá.

213. *Myrmotherula surinamensis multostriata* ScL.

[*Sitta surinamensis* Gmelin, *Syst. Nat.* 1. i. p. 442 (1788.—based on "Surinam Nuthatch," Latham, *Gen. Syn. Birds* 1. ii. p. 654. pl. 28 (= ♀): Surinam).]

Myrmotherula multostriata ScLATER, *Proc. Zool. Soc. Lond.* xxvi. 1858. p. 234. pl. cxli. figs. 2 (♂), 3 (♀) (1858.—Ucayali, East Peru).

M. surinamensis multostriata Hellmayr, *Nov. Zool.* xiv. p. 382 (Humaytha).

No. 165. ♂ ad., Calama, 5. vii. 1907.—Wing 51; tail 26; bill 13 mm.

No. 847. ♂ ad., Marmellos, 22. xii. 1907.—Wing 48; tail 24; bill 13 mm.

No. 838. ♂ imm., Marmellos, 21. xii. 1907.—Wing 48; tail 27; bill 13 mm.

No. 164. ♀ ad., Calama, 4. vii. 1907.—Wing 49; tail 23; bill 13 mm.

No. 532. ♀ ad., Jamarysinho, Rio Machados, 10. ix. 1907.—Wing 49; tail 24; bill 13½ mm.

No. 837. ♀ ad., Marmellos, 21. xii. 1907.—Wing 48; tail 25; bill (damaged) — mm.

"Iris brown, feet plumbeous, bill black, below grey."

This series is typical of *M. s. multostriata*. The females have the sides of the head paler or deeper buff with dusky streaks (not uniform clear cinnamon-rufous as in *surinamensis*), the under parts marked with very distinct, though narrow, blackish shaft-stripes on a creamy white ground, and the foreneck as well as the breast washed with buff. The middle of the abdomen alone is creamy white, without streaks. Two of the females have the whole pileum, almost to the base of the bill, striped with black, while in that from Calama the anterior portion is uniform ferruginous as in *surinamensis*, but of a lighter hue. Birds from Pará and the Rio Tapajóz, for which I am indebted to Miss Snethlage, are likewise referable to *multostriata*.

The synonymy and range of *M. s. multostriata* are as follows:—

Myrmotherula multostriata ScLATER, *Proc. Zool. Soc. Lond.* 1858. p. 234. pl. cxli. figs. 2, 3 (Ucayali, East Peru); ScLATER & SALVIN, *l.c.* 1866. p. 185 (Upper Ucayali); *ibidem*, *l.c.* 1873. p. 274 (Upper Ucayali, Santa Cruz, Eastern Peru); ScLATER, *Cat. Amer. Birds* 1862. p. 179 (Upper Amazon—Bates, erroneously registered as type).

M. surinamensis (errore !) Ihering, *Revis. Mus. Paul.* vi. 1904. p. 440 (1905.—Rio Jurua); Hellmayr, *Nov. Zool.* xiii. 1906. p. 368 (Prata, Pará); Snethlage, *Journ. f. Ornith.* 1907. p. 284 (Pará, Ourém; biol.); Slater, *Cat. Birds Brit. Mus.* xv. 1890. p. 231 (part.: specimens *w*—*z*, *b*¹—*d*¹).

M. s. multostriata Ménégau & Hellmayr, *Bull. Soc. Philomat. Paris* 1906. p. 48 (Pebas, Nauta, North Peru: crit.); Hellmayr, *Nov. Zool.* xiv. 1907. p. 68 (Teffé); *l.c.* p. 382 (Humaytha); Snethlage, *Journ. f. Ornith.* 1908. p. 510 (Isle of Goyana, Rio Tapajóz); eadem, *l.c.* p. 531 (Arumathena, Rio Tocantins).

Hab. Eastern Peru: Ucayali, Santa Cruz (Bartlett), Pebas, Nauta (Castelnau & Deville), Samiria (Hauuxwell). Brazilian Amazonia: Teffé, Rio Solimões (Hoffmanns); Rio Jurua (Garbe); Humaytha, Marmellos, left bank, Calama, Jamarysinho, right bank of the Rio Madeira (Hoffmanns); Isle of Goyana, Rio Tapajóz (Snethlage); Arumathena, Rio Tocantins (Snethlage). District of Pará: Prata (Hoffmanns), Pará, Ourém on the Rio Guamá (Snethlage).

Examined.—British Museum: (1) ♂ ad. (specimen "*w*" of Slater's list), Santa Cruz (Bartlett); (2) ♂ ad. (*x*), Ucayali, *type* of *M. multostriata* (Hauuxwell); (3) ♂ ad. (*z*), Upper Ucayali (Bartlett); (4) ♀ (*y*), Ucayali (Hauuxwell), *type* of *M. multostriata*; (5, 6) ♀ ♀ (*b*¹, *c*¹), Upper Ucayali (Bartlett); (7) ♀ (*d*¹), Upper Amazon (Bates). Tring Museum: (8) ♀ ad., Samiria (Hauuxwell); (9) ♂ ad., Prata, Pará (Hoffmanns); (10) ♂ ad., Humaytha; (11) ♀ ad., Teffé (Hoffmanns); (12—17), the above series from the Rio Madeira. Paris Museum: (18—22) ♂ ♂ ad., ♀ ♀ ♀, Pebas, Nauta (Castelnau & Deville). Munich Museum: (23, 24) ♂ ♀ ad., Isle of Goyana, Tapajóz (Snethlage).

M. s. multostriata is, of course, quite distinct from *M. longicauda* Berl. & Stolz.,* the latter being a near ally of *M. cherrieri* Berl. & Hart.†

214. *Myrmotherula hauuxwelli hauuxwelli* (Sl.).

Formicivora hauuxwelli Slater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 131. tab. 126. fig. 2 (1857.—Eastern Peru).

Myrmotherula Hauuxwelli Pelzel, *l.c.* p. 81 (Engenho do Cap. Gama, Salto do Girao).

M. hauuxwelli hauuxwelli Hellmayr, *Nov. Zool.* xiv. 1907. p. 383 (Humaytha).

Nos. 120, 336. ♂ ♂ ad., Calama, 28. vi., 5. viii. 1907.—Wing 53, 51; tail 26, 23 mm.

No. 832. ♂ ad., Marmellos, 19. xii. 1907.—Wing 53; tail 23 mm.

Nos. 1008, 1024, 1028. ♂ ♂ ad., ♂ vix ad., Maruins, R. Machados, 12, 16, 17. vii. 1908.—Wing 51—52; tail 23—24 mm.

No. 197. ♀ ad., Calama, 10. vii. 1907.—Wing 50; tail 24 mm.

Nos. 945, 950. ♀ ♀ ad., Maruins, R. Machados, 26, 28. vi. 1908.—Wing 50 51; tail 22, 23 mm.

"Iris brown, feet plumbeous or blackish, bill black, below grey."

All have a distinct white dorsal patch, agreeing in this as well as in other respects with examples from Eastern Ecuador.

215. *Myrmotherula leucophthalma leucophthalma* (Pelz.).

Formicivora leucophthalma Pelzel, *Zur Orn. Bras.* ii. pp. 83, 155 (1868.—Salto do Girao, Rio Madeira); Hellmayr, *Verhandl. Zool. Bot. Gesellsch. Wien* liii. 1903. p. 213 (crit.).

[Mus. Vindob., No. 15308. ♀ imm., Salto do Girao, October 8, 1829 (Natterer coll.). *Type of species.*—Wing 52; tail 43½; bill 14½ mm.]

* *Ibis* 1894 p. 391 (Central Peru).

† *Nov. Zool.* ix. p. 72 (1902.—Perico, Orinoco River).

No. 947. ♀ ad., Maruins, Rio Machados, 27. vi. 1908. "Iris yellow, feet grey, bill black."—Wing 54; tail 45; bill 14 mm.

The type is an immature bird, while the specimen sent by Mr. Hoffmanns is perfectly adult. It differs from the former in having the upper parts duller and less rufescent brown; the upper tail-coverts brown like the back (instead of cinnamon-rufous); the tail duller, rufescent brown, less cinnamon; the edges to the remiges more olive-brown, less reddish; and the belly decidedly paler ochraceous. Moreover, the median and greater wing-coverts are deeper black, with the large apical spots better defined, as well as of a clearer ochraceous buff. These trifling differences are, no doubt, due to age.

As pointed out by me (*l.c.*), *M. leucophthalma* is very nearly related to *M. sororia* Berl. & Stolz.,* so closely indeed that the latter will have to be considered as only subspecifically distinct. The females of both forms agree in having the median and greater wing-coverts black with large rounded spots of ochraceous buff, while, in the allied *M. gutturalis* Sel. & Salv.,† from British Guiana and Cayenne, they are light russet-brown with minute apical dots of buff. However, *M. leucophthalma* may be distinguished from *M. sororia* by the deeper colour of the under parts, deeper ochraceous buff apical spots to the wing-coverts, and by its rufescent brown or cinnamonaceous (instead of dark brown) tail.

An adult male from Bom Lugar, Rio Purús,‡ with the throat black spotted with white, differs in the same way—viz. decidedly rufescent brown tail—from a male of *M. sororia* (Mus. H. v. Berlepsch; Rio Tigré, N.E. Peru, J. Hauxwell coll.). Besides, the back is conspicuously lighter brown, the outer aspect of the wings less rufescent, and the cinereous of the breast paler. In both skins the apical spots to the wing-coverts are buff, whereas in the male of *M. gutturalis* the much smaller spots are pure white. The Purús bird undoubtedly represents the hitherto unknown male sex of *M. leucophthalma*. I have also examined the ♂ ad. from Marajó mentioned by Miss Snethlage, noticing several small differences, which, however, must be confirmed by additional specimens before attempting any separation.

I think it useful to append a condensed review which may help naturalists in the determination of these difficult birds.

(a) *M. leucophthalma leucophthalma* (Pelz.).

Type locality: Salto do Girao, Rio Madeira.

Hab. Brazilian Amazonia: Macujnbim, Island of Marajó (Hagmann—♂ in Mus. Paraense); Armatheua, Tocantins (Snethlage); Rio Madeira: Salto do Girao (Natterer), Maruins, Rio Machados (Hoffmanns); Bom Lugar, Rio Purús (♂ in Mus. Paraense).

♂ ad. Upper parts pale olive-brown, tail light rufescent brown; lesser upper wing-coverts greyish olive, dusky at base; median and greater series black with large, rounded apical spots of deep buff; wings exteriorly edged with rufescent olive-brown. Throat black with large, wedge-shaped white spots; cheeks, malar region, foreneck, and breast pale cinereous; lower abdomen, sides, and under tail-coverts pale olive-brown.

* *Ibis* 1894. p. 396 (La Gloria, La Merced, Central Peru).

† *Ibis* 1881. p. 269 (Bartica Grove, British Guiana).

‡ *M. gutturalis leucophthalma* (sic!) Snethlage, *Journ. f. Orn.* 1908. p. 15.

♂ ad., Bom Lugar, Purús, 18. vii. 1903.—Wing 52 ; tail 40 ; bill $14\frac{1}{2}$ mm.

♀ ad. Differs from the male in having the lower parts (including throat) ochraceous, the sides of the head buff, and the apical spots to the wing-coverts deeper, ochraceous buff.

(b) *M. leucophthalma sororia* Berl. & Stolzmann.

Type locality : La Gloria, Chanchamayo, Central Peru.

Hab. Central Peru : La Gloria, La Merced (Kalinowski). North Peru : Huambo (Stolzmann), Rio Tigré (Hauxwell).

♂ ad. (Mus. H. v. Berlepsch, Rio Tigré, coll. by John Hauxwell). Upper parts dark olive-brown, some of the feathers in the middle of the upper back with rufous brown edges ; tail dusky ; lesser upper wing-coverts blackish with minute whitish apical dots ; median and greater series black with larger, deep buff apical spots, as in *M. l. leucophthalma*. Under parts as in the last-named form, but breast slightly clearer grey.

Wing 50 ; tail 39 ; bill 14 mm.

♀ ad. Like *M. leucophthalma*, but tail dusky with brownish edges ; under parts and apical spots of upper wing-coverts clearer ochraceous ; outer webs of remiges deeper russet-brown ; back darker olive-brown, etc.

Wing 53 ; tail 41 ; bill 15 mm.

(c) *M. spodiota* Sel. & Salv., *Proc. Zool. Soc. Lond.* 1880. p. 159.

Type locality : Sarayaçu, Eastern Ecuador.

Hab. Only known from type locality.

♂ vix ad. (*Type of species*, Brit. Museum). Differs from *M. l. leucophthalma* and *M. l. sororia* in having the back, except the olive-brown upper tail-coverts, slate-grey, the large apical spots to the wing-coverts white, and the breast much darker grey. Tail and outer margins of remiges dark rufescent brown as in *M. l. leucophthalma*.

Wing 55 ; tail 37 ; bill 15 mm.

♀. Unknown.

N.B. This imperfectly known form is most probably a geographical race of *M. leucophthalma*.

(d) *M. gutturalis* Sel. & Salv.

Type locality : Bartica Grove, British Guiana.

Hab. British Guiana : Bartica Grove, Merume Mts., Rio Atapuirow, Camacusa, Quonja (Whitely). Cayenne : Ipousin, Rio Appronagne (Cherrie).

Ad. Differs from the preceding species by having the upper wing-coverts light olive-brown with minute white apical dots.

In the males the cinereous colour beneath is restricted to the chest, the rest of the lower parts being pale olive-brown. The throat is black, spotted with white.

Wing 50—52 ; tail 40—44 ; bill 14—15 mm.

As in the allied species, the female has the lower parts uniform ochraceous with the flanks, etc., brownish.

Wing 50—52 ; tail 37—42 mm.

216. *Myrmotherula ornata hoffmannsi* Hellm.

[*Formicivora ornata* Sclater, *Rev. Mag. Zool.* (2) v. p. 480 (1853.—Nova Grenada).]

M. a. hoffmannsi Hellmayr, *Bull. Brit. Orn. Cl.* xvi. p. 84 (April 1906.—Itaitúba, left bank of the Rio Tapajóz); *Nov. Zool.* xiv. 1907. p. 22.

M. ornata (not of Sclater) Pelzeln, *Zur Orn. Bras.* ii. p. 81 (Salto Theotônio, Ribeirão, Rio Madeira).

Nos. 79, 379. ♀♀ ad., Calama, 19. vi., 11. viii. 1907.—Wing 51, 53; tail 34, 35; bill 14 mm.

“Iris brown, feet plumbeous, bill blackish grey.”

These examples agree with the type in all essential points, especially in having the apical spots to the wing-coverts deep buff (pure white in *M. o. ornata*) and the throat deep ochraceous (not black spotted with white), but differ slightly by the rather brighter ochraceous colour of the breast and abdomen. This, however, is not likely to be a constant character. Both specimens have very little ferruginous admixture in the middle of the back, while in the female of *M. o. ornata* the entire back (except pileum and nape) is bright chestnut-rufous. Another difference is to be found in the colour of the axillaries and under wing-coverts, which are pure white in *M. o. ornata*, bright buff in *M. o. hoffmannsi*.

Dr. von Lorenz has very kindly sent for my examination the two males obtained on the Rio Madeira by the late Dr. Natterer. They agree well with the type and belong undoubtedly to *M. o. hoffmannsi*. The latter form has recently been met with by Miss Snetblage on the banks of the Tapajóz and Tocantins Rivers.*

217. *Myrmotherula haematonota* (Scl.).

Formicivora haematonota Sclater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 48 (June 1857.—Chamicuro, Eastern Peru).

Myrmotherula haematonota Pelzeln, *l.c.* p. 81 (Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 384 (Borba, Humaytha).

Nos. 171, 243, 253, 288. ♂♂ ad. and vix ad., Calama, 6, 19, 22, 29. vii. 1907. “Iris yellow or pale brown, feet dark grey or plumbeous, bill black.”—Wing 50—53; tail 36—42; bill 13½—14 mm.

These specimens, adults with the back and rump deep ferruginous, agree perfectly with a series from the Canra Valley, Venezuela. The male obtained near Borba, by Natterer, is immature, having the tips to the upper wing-coverts deep buff, and but a limited space in the middle of the back dark ferruginous.

About the identity of *M. haematonota* and *M. pyrrhonota* cf. my remarks in *Nov. Zool.* xiv. 1907. p. 70.

Miss Snetblage has lately recorded *M. haematonota* from Villa Braga, left bank of the Rio Tapajóz.†

218. *Myrmotherula axillaris axillaris* (Vieill.)

Myrmothera axillaris Vieillot, *Nouv. Dict.* xii. p. 113 (1817.—“la Guyane”).

Myrmotherula axillaris Pelzeln, *l.c.* p. 82 (Borba, Matogrosso, Engenho do Gama, S. Vicente, etc.); Hellmayr, *Nov. Zool.* xiv. 1907. p. 383 (Humaytha, Borba).

No. 935. ♂ ad., Marnins, Rio Machados, 21. vi. 1908. “Iris dark brown, feet plumbeous, bill black.”—Wing 53; tail 38; bill 13 mm.

Identical with Cayenne examples.

* *Journ. f. Ornith.* 1908. pp. 511, 532.

† *Journ. f. Ornith.* 1908. p. 511.

219. *Myrmotherula longipennis* Pelz. (subsp.?).

Myrmotherula longipennis Pelzeln, *Zur Orn. Bras.* ii. p. 153 (1868.—Marabitanas, Rio Negro); Hellmayr, *Nov. Zool.* xiv. p. 383 (Borba).

No. 1011. ♂ ad., Marnins, Rio Machados, 13. vii. 1908. "Iris black, feet plumbeous, bill black."—Wing 56; tail 29; bill 13 mm.

No. 936. ♀ ad., Marnins, 21. vi. 1908. "Iris dark brown, feet plumbeous, bill black, below greyish."—Wing 57; tail 33; bill 13 mm.

The adult male agrees in coloration with our series from Cayenne, Venezuela (Caura), etc., but has much shorter wings and tail than any other specimen I have seen. Though the cinereous colour of the belly is rather paler than in the majority of Cayenne and Venezuelan skins, one from the Caura Valley matches it exactly. There is no trace of the white quill-lining more or less conspicuous in all other examples examined.

The female also differs from six others (Cayenne, Caura) by its slightly shorter tail, much less distinct dingy whitish quill-lining, and olive-brown (instead of bright russet or cinnamon-brown) edges to the remiges.

An adult male from Borba, obtained by Mr. Hoffmanns on his first expedition in 1906, however, is fully as large as those from more northern localities (wing 63; tail 36 mm.).

A much larger series than at present available is required to make out the geographical races of *M. longipennis*.

[220. *Myrmotherula garbei* Ihering (?).

Cf. Hellmayr, *Nov. Zool.* xiv. p. 383.

Left bank of the Rio Madeira: Humaytha (Hoffmanns).

The same form has been recorded from Villa Braga, left bank of the Tapajóz, by Miss Snethlage.* I am still in doubt as to its proper specific appellation.]

221. *Myrmotherula menetriesii berlepschi* Hellm.

Nos. 72, 922. ♂♂ ad., Calama, 18. vi. 1907, 6. viii. 1908.—Wing 52, 53; tail 28, 29; bill 13½ mm.

No. 208. ♀ ad., Calama, 12. vii. 1907.—Wing 54; tail 29; bill 13 mm.

No. 1041. ♀ ad., Marnins, Rio Machados, 21. vii. 1908.—Wing 53; tail 26; bill 14 mm.

"Iris greyish brown or brown, feet plumbeous, bill black."

The males agree perfectly with the type of *M. berlepschi*, most obligingly lent by Dr. Lorenz, of Vienna. The four specimens differ from *M. m. menetriesii*† merely by the clearer grey of the plumage, the under parts being decidedly lighter, less bluish, the cheeks and malar region more whitish grey, and the back likewise paler. The difference in the markings of the rectrices alluded to in the original description of *M. berlepschi* does not hold good. The females of the two forms are, however, much more different. That of *M. m. berlepschi* may readily be distinguished by having the upper wing-coverts mainly bright cinnamon-brown (instead of dull grey with indistinct buffy olive edges), the outer web of the remiges cinnamon

* *Journ. f. Orn.* 1908, p. 511.

† I had the two original specimens of *M. boliviana* Berl. from San Mateo, N. Bolivia, and a series from Tefé (cf. *Nov. Zool.* xiv. p. 69) for comparison.

(instead of olive-grey), and the rectrices warm brown edged with rufescent (not uniform olive-grey). Pileum and back are, furthermore, more or less brightly cinnamon-brown (instead of olive-grey or brownish olive), and the under parts deeper ochraceous. The female from Marnins agrees very closely with Natterer's hen birds, while the one from Calama is less rufescent on the back and tail, pointing towards *M. m. menetriesii*, from which it can, however, easily be told by the colour of the upper wing-coverts, etc.

The synonymy and range of the two races may be summarized as follows :—

(a) *Myrmotherula menetriesii menetriesii* (D'Orb.).

Myrmotherula Menetriesii D'Orbigny, *Voyage, Oiseaux* p. 184 [(1838.—Cochabamba, Yuracarès, Bolivia), descr. ♂ ad., type in Paris Museum examined].

Myrmotherula menetriesii Ménégaux & Hellmayr, *Bull. Soc. Philomat. Paris* (9) viii. 1906. p. 51 (Yuracarès [type]; N.E. Peru); Hellmayr, *Nov. Zool.* xiv. 1907. p. 69 (crit.; Tefé); Sneath, *Journ. f. Ornith.* lvi. 1908. p. 16 (Bom Lugar, Monte Verde, Ponto Alegre : Rio Purús).

M. boliviana Berlepsch, *Journ. f. Ornith.* xlix. p. 96 (1901.—San Mateo, N. Bolivia), descr. ♂ ♀; cf. Hellmayr, *Verhandl. Zool. Bot. Ges. Wien* liii. 1903. p. 210 (crit.).

M. brevicauda juruana Ihering, *Revis. Mus. Paulist.* vi. 1904. p. 440 (1905.—Rio Juruá, Brazil); cf. Hellmayr, *Nov. Zool.* xiv. 1907. p. 70.

M. longipennis Slater, *Cat. Birds Brit. Mus.* xv. p. 241 (part. : specimens *p* and *q* : Rio Javarri, and Chamicuros, East Peru).

Hab. Eastern Bolivia : Cochabamba, Yuracarès (D'Orbigny), San Mateo, (Garlepp). W. Brazil : Rio Javarri (Bates); Tefé, R. Solimões (Hoffmanns); Rio Juruá (Garbe); Bom Lugar, Monte Verde, Ponto Alegre, on the Rio Purús. N.E. Peru (Castellan) : Chamicuros (Hanxwell).

Examined : 1 ♂ ad., Yuracarès, type of *M. menetriesii*; 2 ♂ ♂ ad., 1 ♂ imm., 1 ♀ ad., San Mateo, incl. the type of *M. boliviana*; 1 ♂ ad., R. Juruá, type of *M. brevicauda juruana*; 2 ♂ ♂, 2 ♀ ♀ ad., Rio Purús; 4 ♂ ♂ ad., 1 ♂ imm., 5 ♀ ♀, Tefé; 1 ♂ ad., R. Javarri; 1 ♂ ad., Chamicuros; 1 ♂, 2 ♀ ♀ ad., N.E. Peru (Castellan coll. in Paris Museum).

(b) *Myrmotherula menetriesii berlepschi* Hellm.

Myrmotherula berlepschi Hellmayr, *Verhandl. Zool. Bot. Gesellsch. Wien* liii. p. 211 (1903.—Salto do Girao, Rio Madeira).

M. menetriesii (nec D'Orbigny) Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 82 (Ribeirão, Salto do Girao, Rio Madeira).

Hab. Central Brazil, right bank of the upper Rio Madeira : Salto do Girao, Ribeirão (Natterer), Calama (Hoffmanns), Marnins on the Rio Machados (Hoffmanns).*

Examined : 2 ♂ ♂, 1 ♀ ad., Salto do Girao, incl. type of *M. berlepschi*, 1 ♀ ad., Ribeirão, all in the Vienna Museum; 2 ♂ ♂ ad., 1 ♀ ad., Calama, 1 ♀, Marnins, in the Tring and Munich Museums.

[222. *Myrmotherula cinereiventris* Scl. & Salv.

Cf. *Nov. Zool.* xiv. 1907. p. 384 (Borba).

Right bank of the Madeira : Borba (Hoffmanns). Widely distributed in Amazonia from Cayenne to Northern Peru and Eastern Ecuador, and most probably a geographic race of *M. menetriesii*. Cf. my remarks in *Nov. Zool.* xiv. 1907. p. 70.]

* Also recorded by Sneath from Villa Braga (left bank of Tapajós) and Alcobaça, Tocantins (*Journ. f. Orn.* 1908, pp. 512, 532). I have not seen specimens from either of these localities.

223. *Myrmotherula assimilis* Pelz.

Myrmotherula assimilis Pelzeln, *Zur Orn. Bras.* ii. pp. 81, 152 (1868.—Borba, Rio Madeira; below Poiares, Rio Negro; Rio Amajau); Hellmayr, *Nor. Zool.* xiv. p. 384 (Humaytha).

Nos. 28, 415. ♂ ad., ♂ imm., Calama, 12. vi., 17. viii. 1907.—Wing 53, 54; tail 29, 30½; bill 13½, 14 mm.

No. 874. ♂ imm., Marmellos, 27. xii. 1907.—Wing 53; tail 29; bill 14 mm.

Nos. 824, 870. ♂♂ juv., Marmellos, 18, 26. xii. 1907.—Wing 51, 54; tail 30, 31; bill 14 mm.

The series fully confirms the distinctness of *M. assimilis*. The young males have the lower parts dingy (greyish) white, slightly shaded with buffy here and there, some of the upper wing-coverts brown edged with buff, etc., all remains of the juvenile plumage. For characters and range cf. *l.c.* p. 384.

224. *Ramphocaenus melanurus amazonum* Hellm.

[*Ramphocaenus melanurus* Vieillot, *Nouv. Dict.* xxix. p. 6 (1819.—“Brésil, par Delalande fils,” sc. Rio de Janeiro).]

R. m. amazonum Hellmayr, *Nor. Zool.* xiv. p. 66 (1907.—Teffé, Rio Solimões); idem, *l.c.* p. 373 (Humaytha, Borba).

Nos. 48, 383. ♂ ad., ♂ imm., Calama, 15. vi., 12. viii. 1907.—Wing 53, 54; tail 50, 47½; bill 22—23½ mm. “Iris brown, feet plumbeous, bill grey.”

Nos. 14, 182. ♀♀ ad., Calama, 10. vi., 7. vii. 1907.—Wing 48, 53; tail 46; bill 22 mm. “Iris brown, feet and bill grey.”

The series fully corroborates the characters of the subspecies. The Calama birds differ from *R. m. albiventris* (represented in the Munich Museum by specimens from Saint-Laurent-du-Maroni, French Guiana, Le Monlt coll.) by the much paler “creamy buff” sides of the neck, by lacking the rufous tinge on the nape, and by having the chest and sides of breast faintly washed with creamy. The outer rectrices are tipped with smoky grey.

R. m. amazonum ranges from the Rio Madeira westward to Eastern Pern (Yurimaguas, Santa Cruz, Chyavetas) and northward to the Rio Solimões (Teffé). Farther to the south, on the Gnaporé, one of the headwaters of the Rio Madeira, it is replaced by *R. melanurus sticturus* Hellm., of which Natterer obtained a good series at Villa Bella de Mattogrosso, Engenho do Gama, and São Vicente. Cf. *Nor. Zool.* xiv. 1907. pp. 373–5, where a short review of the geographical races of *R. melanurus* is given.

[225. *Scelateria argentata* (Des Murs).

Cf. *Nor. Zool.* xiv. 1907. p. 375 (Humaytha).

Heterocnemis albiventris Pelzeln, *l.c.* p. 161 (Guajaraquacu, Girao, Borba).

Both banks of the Rio Madeira: Guajaraquacu, Salto do Girao, Borba (Natterer), Humaytha (Hoffmanns). Also found on the Peruvian Amazons, Rio Negro, and Orinoco.*]

[226. *Scelateria schistacea leucostigma* (Pelz.).†

Cf. Hellmayr, *Nor. Zool.* xiv. 1907. p. 376 (Borba).

Right bank of the Rio Madeira: Borba (Hoffmanns).]

* In the *Cat. Birds Brit. Mus.* xv. p. 277, a specimen from Bartica Grove (Whitely) is recorded s.n. *H. argentata*. I have examined the bird; it is without doubt a young male of *Scelateria schistacea leucostigma* (Pelz.).

† I have examined the bird from the Rio Juruá, recorded by Ihering s.n. *Scelateria leucostigma* (Rev. Mus. Paul. vi. p. 442). It turns out to be a male of *Myrmelastes hyperythrus* (Gould).

227. *Scelateria schistacea humaythae* Hellm.

Scelateria schistacea humaythae Hellmayr, *Bull. B. O. C.* xix. p. 51 (1907.—Humaytha); Hellmayr, *Nov. Zool.* xiv. 1907. p. 375 (Humaytha, Paraiso).

No. 1020. ♂ ad., Marnius, Rio Machados, 15. vii. 1908.—Wing 68; tail 54; bill 19 mm.

No. 745. ♂ ad., Allianca, 5. xi. 1907.—Wing 70; tail 57; bill 19 mm.

No. 791. ♀ ad., Allianca, 17. xi. 1907.—Wing 68; tail 53; bill 20 mm.

Perfectly identical with the Humaytha series. The male from Allianca, in the length of tail, approaches *S. s. leucostigma*.

S. s. humaythae inhabits both banks of the river. On his first journey in 1906 Mr. Hoffmanns obtained a large suite at Humaytha, and a single female on the opposite side, near Paraiso.

228. *Myrmelastes luctuosus luctuosus* (Licht.).

Lanius luctuosus Lichtenstein, *Verz. Dubl. Berliner Mus.* p. 47 (1823.—“Pará”).

Thamnophilus luctuosus Pelzeln, *l.c.* p. 76 (Borba).

Myrmelastes luctuosus Hellmayr, *Nov. Zool.* xiv. p. 372 (Humaytha).

Nos. 387, 523. ♀♀ ad., Calama, 12. viii. 7. ix. 1907.—Wing 76, 78; tail 64, 66; bill 20, 22 mm.

Nos. 530, 561. ♀♀ ad., Jamarysinho, 9, 17. ix. 1907.—Wing 79—80; tail 68—70; bill 21 mm.

“Iris brown, feet plumbeous or blackish, bill black.”

Identical with examples from the Tapajóz. The original locality requires confirmation, for in recent years the bird has not been found near the town of Pará.

229. *Hypocnemis cantator peruvianus* Tacx.

[*Formicarius Cantator* (sic!) Boddaert, *Tabl. Pl. enl.* p. 44 (1783.—based on “Le Carrillonneur, de Cayenne,” D'Aubenton, *Pl. enl.* 700. fig. 2: Cayenne).]

Hypocnemis cantator, peruvianus Taczanowski, *Orn. Pérou* ii. p. 61 (1884.—Yurimaguas, North Peru); Hellmayr, *Nov. Zool.* xiv. 1907. p. 377 (Humaytha).

H. cantator (not of Boddaert) Pelzeln, *l.c.* p. 87 (part.: Villa Maria, Engenho do Gama, Mattogrosso; Borba, Rio Madeira).

Nos. 262, 280, 369. ♂♂ ad., ♂ imm., Calama, 24, 27. vii., 11. viii. 1907. “Iris brown, feet plumbeous, bill black, lower mandible greyish.”—Wing 54½—55; tail 38—42; bill 14½—15 mm.

Nos. 222, 261. ♀♀, Calama, 14, 24. vii. 1907.—Wing 53, 54; tail 37, 40; bill 14½, 15 mm.

No. 982. ♂ perad., Maruins, Rio Machados, 8. vii. 1908.—Wing 56½; tail 40½; bill 14½ mm.

No. 983. ♀ ad., Maruins, 8. vii. 1908.—Wing 55; tail 39; bill 14½ mm.

In the coloration of the upper parts—viz. large white dorsal patch, interscapulars coarsely spotted with black and distinctly edged with white—the adult males agree perfectly with a very large series from North-Eastern Peru, Tefé, Mattogrosso, and Itaitúba (R. Tapajóz). As a rule, specimens from Mattogrosso, Calama, Maruins, Rio Juruá, and East Bolivia (Yuracarés: D'Orbigny coll.) have the flanks paler ochraceous, but several skins from Pebas (Peru) and Tefé are not different in this respect.

The range of *H. c. peruvianus* is, according to my present knowledge, as follows :—

Brazil, south of the Amazon Valley : Arumatheua, Tocantins * ; Villa Braga, Bella Vista, † Itaituba, ‡ Tapajóz ; Borba (Natterer), Calama, Marnins, Humaytha § (Hoffmanns), Rio Madeira ; Engenho do Gama, Rio Guaporé (Natterer) ; Villa Maria, Rio Paraguay (Natterer) ; Rio Jurú (Garbe) ¶ ; Bom Lugar, Purús ¶ ; Tefé, Rio Solimões (Hoffmanns), ** Ega (Bates), Rio Javarri (Bates). N.E. Bolivia : Yuracarès, near Cochabamba (D'Orbigny). †† Peru : Yurimagas (Stolzmann), Upper Ucayali, Xeberos, Chyavetas, Chamicnos, Santa Cruz (Bartlett), Pebas (Hanxwell, Castelnau & Deville), Samiria (Hanxwell). Eastern Ecuador : Rio Napo (Petit), Sarayacu (Buckley).

On the north bank of the Amazons, near Obidos and Manaus, it is replaced by the typical race, *H. c. cantator* (Bodd.). ‡‡

230. *Hypocnemis punctulata* (Des Murs).

Rhopotera punctulata Des Murs in Castelnau's *Voyage, Oiseaux* p. 53 (June 1856.—“ Hant Amazone,” sc. Peruvian Amazons).

Rhopotera guttata Des Murs, *l.c.* tab. xvii. fig. 3 [♀] (December 1856).

Hypocnemis punctulata Hellmayr, *Nor. Zool.* xiv. 1907. p. 377 (Humaytha).

No. 133. ♂ vix ad., Calama, 30. vi. 1907. “ Iris greyish brown, feet yellowish grey, bill black.”—Wing 60 ; tail 32 ; bill 15 mm.

No. 188. ♀ juv. in nestling plumage, Calama, 7. vii. 1907.—“ Iris and feet grey.”—Wing 60 ; tail 32 ; bill 14 mm.

The adult bird agrees with our series from Humaytha (left bank of the Rio Madeira) and the Canra Valley, Venezuela.

The nestling has never been described before. The ptilinum is uniform olive-brown as in the adult, but the back shows large buff spots of irregular shape and narrowly edged with blackish. The black spotting of the chest is altogether absent, all the lower surface except the white throat being clear buff, the feathers of the foreneck with indistinct edges of dusky. That the bird belongs here and not to *H. naevia theresae* is proved by its short tail, greyish (not wax-yellow) legs, and blackish upper tail-coverts.

H. punctulata is known from both banks of the Madeira, but not yet recorded from any Brazilian locality farther east.

231. *Hypocnemis naevia theresae* (Des Murs).

[*Pipra naevia* Gmelin, *Syst. Nat.* 1. ii. p. 1003 (1789, §§—ex D'Aubenton, Pl. enl. 823. fig. 2 (= ♂ ad.)—Cayenne).]

Conopophaga Theresae Des Murs in Castelnau's *Voyage, Oiseaux* p. 51. tab. xvi. fig. 2 [♀] (1856.—Rio Javarri, Peru).

Nos. 4, 134, 157, 264. ♂♂ imm., Calama, 8, 30. vi., 3, 24. vii. 1907.—Wing 59½—63 ; tail 39—43 ; bill 16—17 mm.

* Sneath, *Journ. f. Orn.* 1908. p. 532.

¶ Ibering, *Revis. Mus. Paul.* vi. p. 442.

† Eadem, *l.c.* p. 512.

¶ Sneath, *Journ. f. Orn.* 1908. p. 17.

‡ Hellmayr, *Nor. Zool.* xiv. 1907. p. 19.

** Hellmayr, *Nor. Zool.* xiv. 1907. p. 67.

§ Idem, *l.c.* p. 377.

†† *Thamnophilus striatothorax* D'Orbigny, *Voyage, Oiseaux* p. 176.

‡‡ Hellmayr, *Nor. Zool.* xiv. p. 32.

§§ Cf. Hopkinson, *Proc. Zool. Soc. Lond.* 1907. pt. iv. (publ. May 1908) pp. 1035-7.

Nos. 84, 363, 364, 476. ♀♀ imm., Calama, 21. vi., 10, 28. viii. 1907.—Wing 59—62; tail 40—42; bill 15—16½ mm.

No. 764. ♂ ad., Allianca, 8. xi. 1907.—Wing 59; tail 39; bill 15½ mm.

Nos. 952, 966, 1029. ♂♂ ad., Maruins, 28. vi., 1, 17. vii. 1908.—Wing 58—60; tail 39; bill 15—16 mm.

Nos. 951, 972. ♀♀ ad., Maruins, 28. vi., 5. vii. 1908.—Wing 59; tail 40½; bill 15 mm.

"Iris grey or brown, feet pale yellow or reddish yellow, bill black."

The series agrees perfectly with another from Eastern Ecuador (Napo) and several examples from Peru. **Adult** males have the top of the head slate-grey, the markings on the wings and the rounded spots of the interscapulum pure white or very nearly so, the basal portion of the tail clear ashy or but faintly tinged with olive, and the flanks as well as under tail-coverts very pale creamy buff. **Immature** males are much browner above, the pale markings on wings and back bright buff, and the flanks much more extensively and deeper ochraceous buff. **Adult** females differ from young ones merely by having the pileum more mixed with slate-grey.

The above variation is well illustrated by the two series from the Napo and Rio Madeira respectively.

As first pointed out by Ménégau & Hellmayr,* two forms had been confounded under the name of *H. theresae*. In the following lines I give a condensed *résumé* of their characters, range, and synonymy:—

(a) *Hypocnemis naevia naevia* (Gm.).

Pipra naevia Gmelin, *Syst. Nat.* 1. ii. p. 1003 (1789.—ex D'Aubenton, Pl. enl. tab. 823. fig. 2 = ♂: Cayenne); Latham, *Ind. Ornith.* ii. 1790. p. 559 (based on the same); Shaw, *Gen. Zool.* X. i. 1817. p. 32 (based on the same).

Conopophaga naevia Vieillot, *Nour. Diet.* vii. 1817. p. 458 (based on the same).

Hypocnemis naevia Pelzeln, *Zur Orn. Bras.* ii. 1868. p. 89 (Marabitanas, Rio Negro, Natterer coll.; Cayenne: ex, Becœur); Berlepsch, *Nov. Zool.* xv. 1908. p. 159 (Ipousin, R. Approuague, Cherrie coll.).

H. naevia naevia Ménégau & Hellmayr, *Bull. Soc. Philomat. Paris* 1906. p. 44 (Cayenne; crit.).

H. theresae (nec Des Murs) P. L. Slater, *Cat. Birds Brit. Mus.* xv. 1890. p. 292 (part.: specimens a, b, ex Oyapoc, Cayenne); Ménégau, *Bull. Mus. Paris* x. 1904. p. 177 (Camopi, Cayenne, Geay coll.).

Hab. French Guiana: Cayenne (Buffon, Becœur), Oyapoc (Verdey), Ipousin, Rio Approuague (Cherrie), Camopi (Geay), Saint-Jean-du-Maroni (Le Monlt; Mus. Monac.). North Brazil: Marabitanas, upper Rio Negro (Natterer).

♂ ad. Above intense rufous brown, top of the head like the back, only the forehead slate-grey; a restricted patch in the middle of the interscapular region black, marked with small, drop-shaped spots of pale buff. Tertiaries bright rufous brown, with a buff apical spot, preceded by a black subterminal band. Rectrices bright rufous brown, with a well-defined black subterminal bar, from 3 to 2 mm. wide, and a narrow buffy white apical margin. This measures about 1 to 2 mm. in width on the outer tail-feathers, but is scarcely indicated by a whitish fringe on the central pair. Sides of breast and abdomen as well as crissum bright ochraceous.

Wing 57—61; tail 37—42 mm.

♀ ad. Agrees in the specific characters with the male. Under surface bright ochraceous; throat rather paler, more buff, bordered on each side by a narrow black malar streak.

* *Bull. Soc. Philomat. Paris* 1906. pp. 45-6.

Wing 56—60 ; tail 36—40 mm.

Obs. The five specimens from the Rio Negro, obtained by Natterer, are practically identical with the series from Cayenne.

Examined: 1 ♂ ad., Camopi ; 1 ♂ ad., Saint-Jean-du-Maroni ; 1 ♂ ad., Ipousin ; 2 ♂ ad., 1 ♀, Cayenne ; 1 ♂, 1 ♀, Oyapoc ; 3 ♂ ad., 2 ♀ ad., Marabitanas Rio Negro.

(b) *Hypocnemis naevia theresae* (Des Murs).

Conopophaga Theresae Des Murs in Castelnau's *Voyage, Oiseaux* p. 51, tab. xvi. fig. 2 [♀] (1856.—Rio Javarri, Peru).

C. naevia (not of Gmelin) Lafresnaye & D'Orbigny, *Syn. Av.* in *Mag. Zool.* cl. ii. 1837. p. 13 (Yuracarès, Bolivia) ; D'Orbigny, *Voy. Amér. mérid., Oiseaux* 1838. p. 186 (part.—♂ : Yuracarès).

Hypocnemis theresae Sclater, *P. Z. S. Lond.* 1858. p. 67 (Rio Napo) ; idem, *l.c.* p. 253 (Rio Javarri : Castelnau & Deville) ; idem, *Cat. Amer. Birds* 1862. p. 188 (Upper Amazons, Bates ; Rio Napo) ; Sclater & Salvin, *P. Z. S.* 1866. p. 187 (Upper Ucayali, E. Bartlett coll.) ; idem, *l.c.* 1867. p. 750 (Xeberos, E. Bartlett coll.) ; idem, *l.c.* 1873. p. 185 (Cosnipata, H. Whately coll.) ; idem, *l.c.* p. 276 (Upper Ucayali, Xeberos, Chamicuros : E. Bartlett) ; Taczanowski, *P. Z. S. Lond.* 1874. p. 531 (Monterico : Jelski coll.) ; idem, *l.c.* 1882. p. 32 (Huambo, Yurimaguas : Stolzmann) ; idem, *Orn. Pérou* ii. 1884. p. 72 (Peru) ; Sclater, *Cat. Birds Brit. Mus.* xv. 1890. p. 292 (part. : specimens c—m) ; Salvadori & Festa, *Boll. Mus. Torino* xiv. No. 362. 1899. p. 31 (Santiago, Zamora, East Ecuador : E. Festa) ; Ihering, *Revist. Mus. Paul.* vi. 1905. p. 442 (Rio Jurúá).

H. naevia theresae Ménégaux & Hellmayr, *Bull. Soc. Philomat. Paris* 1906. p. 46 (crit. ; Rio Javarri, East Ecuador, Iquitos, Bolivia).

Hab. S.E. Colombia : Cuembi, Rio Putumayo (G. Hopke coll.—Mus. H. v. B.). Eastern Ecuador : Rio Napo (L. Petit coll. in Tring ; in Mus. Brit. ex Verreaux), Santiago, Zamora (E. Festa), Sarayaçu (Buckley). N. Peru : Iquitos (Whately), Xeberos, Chamicuros, Upper Ucayali (Bartlett), Huambo, Yurimaguas (Stolzmann), Guayabamba (O. T. Baron). C. Peru : Chuchurcas, Huáncayo (W. Hoffmanns), Monterico (Jelski). S.E. Peru : Cosnipata (Whately), Marcapata, Cuzco (O. Garlepp). W. Brazil : Rio Javarri (Castelnau & Deville) ; Rio Jurúá (Garbe) ; Calama, Allianca on the Rio Madeira ; Maruius, Rio Machados (Hoffmanns) ; Lower Amazonia : Villa Braga, left bank of the R. Tapajóz (Snethlage). North Bolivia : Yuracarès (D'Orbigny), San Mateo (G. Garlepp).

♂ ad. Differs from *H. n. naevia* by having all the upper back black with much larger and more numerous buffy white spots, the top of the head and nape slate-grey, the rump and upper tail-coverts pale olive-brown, the tertials black tipped with white, the tail-feathers ashy or olive-grey with much broader (6—8 mm.) black subterminal and white apical bands, and the flanks much paler, creamy buff. Even immature birds are readily distinguishable by the olive-brown ground-colour of the head and back, and paler flanks, besides the other characters.

Wing 58—64 ; tail 38—43 mm.

♀ ad. In addition to the points of difference given under the heading of the male, the females of *H. n. theresae* have the black malar stripe much broader than in the typical race, and the throat pure white.

Wing 58—62 ; tail 38—42 mm.

Obs. I could not find any constant difference between examples from various localities. Two ♂ ad. imm. from Villa Braga, left bank of the Tapajóz, agree exactly with others from more western countries. All of the many females I have seen have the foreneck coarsely spotted with black.

Examined: 1 ♀ ad., Cuembi, R. Putumayo, S.E. Colombia—Mus. H. v. Berlepsch ; 4 ♂ ad., 1 ♀, Rio Napo, Petit coll. in Tring Museum ; 1 ♀, Rio

Javarri, *type*, in Mus. Paris; 1 ♂ ad., Chamicuros, Mus. Tring; 2 ♂♂, 2 ♀♀, Iquitos, Mus. Tring et H. v. B.; 1 ♀, Cosnipata, Mus. H. v. B.; 1 ♂ imm., Hnambo, Mns. H. v. B.; 14 ♂♂ ad., ♂♂ imm., ♀♀, Marcapata, Cuzco—Mus. H. v. B., Vienna and Munich; 1 ♀, Gnayabamba, O. T. Baron—Mus. Brit.; 1 ♂ ad., Chuchurras, Huánuco—Mus. Tring; 4 ♂♂ ad., 4 ♂♂ imm., 6 ♀♀, Rio Madeira—coll. Hoffmanns; 2 ♂♂ imm., Villa Braga, R. Tapajóz—Mus. Pará; 1 ♂ ad., Yuracarès, Bolivia, D'Orbigny coll. in Mus. Paris; 1 ♀ ad., S. Mateo, Bolivia, in Mus. H. v. B.—altogether nearly fifty specimens.

232. *Hypocnemis poecilinota griseiventris* (Pelz.).

[*Hypocnemis poecilinota* Cabanis, *Arch. Naturg.* 13. i. p. 212, tab. 4. fig. 2, descr. orig. ♂ (1847.—British Guiana).]

Pithys griseiventris Pelzeln, *Zur Ornith. Bras.* ii. p. 167, descr. orig. ♀ (1868.—Villa Maria and Engenho do Gama, Mattogrosso; Borba, Rio Madeira).

Hypocnemis poecilonota Pelzeln, *l.c.* p. 88 (part.: Borba); cf. *Nov. Zool.* xiii. p. 371.

H. poecilinota griseiventris Hellmayr, *Nov. Zool.* xiii. 1906. p. 372 (crit.); idem, *l.c.* xiv. 1907. p. 67 (Teffé, Rio Solimoëns); idem, *l.c.* p. 378 (Humaytha, Borba: Rio Madeira).

Nos. 16, 56, 74, 121, 257, 296. ♂♂ ad., Calama, 10, 17, 18, 28. vi., 29. vii. 1907.—Wing 67—70; tail 43—47; bill 17—18 mm.

No. 625. ♂ ad., S. Isabel, Rio Preto, 4. x. 1907.—Wing 67; tail 42; bill 16 mm.

Nos. 21, 39, 57. ♂♂ juv., Calama, 11, 14, 17. vi. 1907.—Wing 68—69; tail 45—47; bill 17—18 mm.

Nos. 27, 42, 114, 130, 192. ♀♀ ad., ♀ imm., Calama, 12, 14, 26, 29. vi., 8. vii. 1907.—Wing 66—70; tail 43—48; bill 16½—18 mm.

Nos. 779, 787, 800, 811. ♀♀ ad., Allianca, 12, 14, 22. xi., 2. xii. 1907.—Wing 64—68; tail 41—44; bill 16½—17 mm.

No. 904. ♂ ad., Maruins, R. Machados, 4. vi. 1908.—Wing 70; tail 43; bill 17 mm.

No. 899. ♂ juv., Maruins, 2. vi. 1908.—Wing 65; tail 42; bill 16½ mm.

No. 995. ♀ ad., Maruins, 11. vii. 1908.—Wing 65; tail 45; bill 17 mm.

“Iris brown or greyish brown, feet grey or plumbeous, bill black.”

The adult ♂♂ differ from *H. p. poecilinota*, of which the Munich Museum possesses a very large series from Cayenne and the Caura Valley, by their considerably darker slate-grey under parts, and by having the white interscapular patch much more extended. The colour of the upper tail-coverts, however, is variable and cannot be used as distinctive character. The females are typical (for description see *Nov. Zool.* xiii. p. 372); the colour of the throat varies from white to cinereous.

H. p. griseiventris is only known from Teffé, Rio Solimoëns, and the Rio Madeira where it inhabits both banks, but it has not yet been found farther to the east, *e.g.* on the Tapajóz.

233. *Hypocnemis leucophrys angustirostris* (Cab.).

[*Pithys leucophrys* Tschudi, *Arch. Naturg.* 10. i. p. 278, descr. orig. ♂ (1844.—Peru).]

Conopophaga angustirostris Cabanis in Schomburgk, *Reisen Brit. Guiana*, iii. p. 685, descr. orig. ♀ (1848.—Coast district of British Guiana).

Hypocnemis leucophrys angustirostris Hellmayr, *Nov. Zool.* xiv. 1907. p. 378 (Humaytha).

H. leucophrys (nec Tschudi) Pelzeln, *l.c.* p. 88 (Borba).

Nos. 177, 238. ♂♂ ad., Calama, 1, 18. vii. 1907.—Wing 70, 71; tail 47, 49; bill 17 mm.

No. 562. ♂ ad., Jamarysinho, 17. ix. 1907.—Wing 70; tail $46\frac{1}{2}$; bill 17 mm.

No. 849. ♂ ad., Marmellos, 22. xii. 1907.—Wing 67; tail 45; bill 17 mm.

Nos. 1, 816, 907. ♀ ♀ ad., Calama, 8. vi. 1907; Marmellos, 16. xii. 1907; Marnins, 5. vi. 1908.—Wing 65—68; tail 42—46; bill 17 mm.

"Iris brown, feet plumbeous or bluish black, bill black."

Identical with examples from British Guiana, Canra Valley, etc. *H. l. angustirostris* is widely distributed in Amazonia, from the Tocantins westward to the rivers Purús and Juruá, and to Teffé, Rio Solimões, in the north.

[234. *Hypocnemis myotherina melanolaema* Scl.

[*Thamnophilus myotherinus* Spix, *Av. Bras.* ii. p. 30. tab. xlii. fig. 1 [♂ ad.] (1825.—part.: descr. of ♂ only, no locality; cf. *Nov. Zool.* xiv. 1907. pp. 20-1).]

Hypocnemis melanolaema Sclater, *Proc. Zool. Soc. Lond.* xxii. 1854. p. 254. pl. lxxii. fig. 2 (1855.—"in Peruvia, Chamicurros").

H. myotherina melanolaema Hellmayr, *Nov. Zool.* xiv. 1907. p. 379 (Humaytha).

Left bank of the Madeira: Humaytha (Hoffmanns). Not obtained on his second journey.

On the right bank of the stream it is replaced by the next form.]

235. *Hypocnemis myotherina sororia* n. subsp.

Hypocnemis myotherina melanolaema (nec Sclater) Hellmayr, *Nov. Zool.* xiv. 1907. p. 379 (part.: No. 1311, ♂ vix ad., Paraíso).

Nos. 13, 31, 136, 160, 181, 259, 400. ♂♂ ad., Calama, 10, 13, 30. vi., 3, 7, 23. vii., 15. viii. 1907. "Iris red or brownish red, feet plumbeous, bill black."—Wing 62—65; tail 38—41; bill $15\frac{3}{4}$ — $16\frac{1}{2}$ mm.

No. 159. ♂ vix ad., Calama, 3. vii. 1907. "Iris red-brown, feet grey, bill black."—Wing 63; tail $40\frac{1}{2}$; bill $16\frac{1}{2}$ mm.

No. 540. ♂ ad., Jamarysinho, Rio Machados, 12. ix. 1907. "Iris brownish red, feet clear grey, bill black."—Wing 64; tail 41; bill 15 mm.

Nos. 169, 403. ♂♂ juv., Calama, 6. vii., 16. viii. 1907. "Iris brown, feet grey, bill black."—Wing 62, 63; tail $38\frac{1}{2}$, 41; bill 16 mm.

Nos. 20, 23, 83, 85, 158, 258. ♀♀ ad., Calama, 11, 21. vi., 3, 23. vii. 1907. "Iris brown or reddish brown, feet plumbeous, bill black, lower mandible greyish."—Wing 62—64; tail 37—41; bill 15— $16\frac{1}{2}$ mm.

Nos. 12, 125. ♀♀ juv., Calama, 10, 29. vi. 1907. "Iris brown, feet grey, bill black, lower mandible pale."—Wing 61, $64\frac{1}{2}$; tail 40; bill 15, $15\frac{1}{2}$ mm.

Nos. 932, 1013. ♀♀ ad., Marnins, Rio Machados (Vargem), 18. vi., 13. vii. 1908. "Iris brown, feet grey, bill black, below greyish."—Wing 63, $63\frac{1}{2}$; tail $40\frac{1}{2}$, 42; bill 15, $15\frac{1}{2}$ mm.

♂ ad. Much like *H. m. melanolaema* Scl. from Northern Bolivia, Pern, and Humaytha, left bank of the Rio Madeira, but averaging smaller and the cinereous colour of the under parts somewhat richer. Pale band behind the black frontal edge and superciliary streak ill-defined, greyish white, exactly as in its western representative.

♀ ad. Agrees with *H. m. melanolaema* Scl. in the pale lower mandible, but the breast and abdomen are much darker, deep ochraceous as in *H. m. ochrolaema* Hellm. It differs, however, from both in having the throat neither pure white like

the former, nor deep ochraceous like the latter, but light creamy buff, in decided contrast to the colour of the belly. The cheeks and malar region are bright buff with narrow dusky cross-lines.

Type in Tring Museum : No. 158, ♀ ad., Calama, 3. vii. 1907 (W. Hoffmanns coll.).

This adds another to the three forms of the *H. myotherina* group of which I have given a review in *Nov. Zool.* xiv. 1907. pp. 20-2. While the male does not much differ from the same sex of *H. m. melanolaema*, the female may be recognized at a glance from *H. m. melanolaema* and *H. m. ochrolaema*, although in its characters it stands somewhat between the two. It shares the pale greyish lower mandible with *H. m. melanolaema*, but in the deep ochraceous colour of the belly it agrees with *H. m. ochrolaema*, which is found on the Tapajóz as well as farther down on the right bank of the Madeira near Borba. The latter form, however, has the lower mandible **blackish** like the upper one, and the throat deep ochraceous like breast and abdomen, whereas in the female of the new race the throat is pale creamy buff, very much paler than, and in strong contrast to, the rest of the under parts. The cheeks and malar region are brighter buff, variegated with dusky in *sororia*, uniform deep ochraceous in *ochrolaema*.

The upper parts are rather variable, being sometimes dull greenish olive as in *ochrolaema*, sometimes warm olive-brown with a more or less distinct rufescent tinge as in *melanolaema*. Superciliary streak and white dorsal patch as in *ochrolaema*. Most of the specimens have a number of small, dusky olive spots on the foreneck, but in two skins (Nos. 20, 932) these are scarcely indicated.

The young females (Nos. 12, 125) are more olive, less brownish, on the upper parts, the rufescent olive superciliary streak is barely indicated, there is scarcely any white at the base of the dorsal feathers, the belly is much paler, the throat nearly pure white, and the upper wing-coverts lack the ochraceous apical bands.

The male from Paraizo, provisionally referred to *H. m. melanolaema*, doubtless belongs to the present race.

H. m. sororia furnishes another instance of rivers separating the ranges of nearly allied forms. It would be interesting to know the meeting-point of *H. m. sororia* and *H. m. ochrolaema*, both of which occur on the right bank of the Rio Madeira, the latter near its mouth, the former farther up the stream.

[236. *Hypocnemis myotherina ochrolaema* Hellm.

Hypocnemis myotherina ochrolaema Hellmayr, *Bull. B. O. C.* xvi. p. 109 (1906.—Itaituba, left bank of the Tapajóz) ; idem, *Nov. Zool.* xiv. 1907. p. 379 (Borba).

H. myotherina (nec Spix) Pelzeln, *l.c.* p. 88 (Borba).

Right bank, lower Rio Madeira : Borba (Hoffmanns, Natterer).

This form extends eastwards to the left side of the Tocantins (Armathena, Alcobaca)*. Miss Suetblage has kindly sent the two specimens for my inspection. The male is practically identical with one from Borba, while the female slightly differs from those obtained at Itaituba and Borba, by having the lower mandible dusky with the extreme base pale yellowish (instead of uniform black).

In all the females of *H. m. ochrolaema* the throat is deep ochraceous like the rest of the under parts.]

* *Journ. f. Orn.* 1908. p. 533.

[237. *Hypocnemis lugubris feminina* Hellm.]

Hypocnemis lugubris feminina Hellmayr, *Rev. Franç. d'Orn.* No. 11. p. 164 (1910.—Borba, Rio Madeira).

H. lugubris (nec Cabanis) Pelzeln, *l.c.* pp. 88, 163 (Borba); Hellmayr, *Nov. Zool.* xiv. 1907. p. 379 (syn. part. and excl. specimens 1, 2; Borba).

Right bank: Borba (Hoffmanns, Natterer).

As pointed out *l.c.* the birds from the Rio Madeira and lower Rio Negro are subspecifically distinct from true *H. l. lugubris* (Cab.),* with which *H. hypoleucc* Ridgw.† is synonymous. The typical race is found on the south bank of the Amazons (Santarem, Paricatuba), while a third, nearly allied form, *H. lugubris berlepschi* Hellm., inhabits Northern Peru (Iquitos, Nanta).

A review of the *H. lugubris* group is given *l.c.*]

238. *Hypocnemis melanopogon* Sel.

Hypocnemis melanopogon Sclater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 130 (1857.—Guiana; cf. *Nov. Zool.* xiv. p. 381); Hellmayr, *Nov. Zool.* xiv. 1907. p. 381 (Humaytha, Borba).

Nos. 166, 422, 527, 731. ♂♂ ad., Calama, 5. vii., 18. viii., 8. ix., 27. x. 1907.—Wing 62—64; tail 34—36; bill 16—17 mm.

No. 711. ♂ ad., S. Isabel, Rio Preto, 17. x. 1907.—Wing 64½; tail 35; bill 17 mm.

Nos. 70, 163, 184, 224, 267, 277, 526. ♀♀ ad. and imm., Calama, 18. vi., 4, 7, 15, 25, 27. vii., 8. ix. 1907.—Wing 62—65; tail 34—37; bill 16½—17 mm.

Nos. 608, 712. ♀♀ ad., S. Isabel, Rio Preto, 2, 17. x. 1907.—Wing 61, 63; tail 33, 34; bill 16½ mm.

"Iris grey, feet plumbeous or blackish, bill black, in females lower mandible grey."

The specimens agree perfectly with our large series from British Guiana and the Canra Valley, Venezuela. In none of them is there any trace of a white interscapular patch; the white apical margins to the rectrices are from ½ to 1 mm. wide.

H. melanopogon inhabits both sides of the Madeira. During his first trip in 1906, Mr. Hoffmanns obtained a series at Humaytha, on the left bank.

239. *Hypocnemis maculicauda* Pelz.

Hypocnemis maculicauda Pelzeln, *Zur Orn. Bras.* ii. pp. 89, 164 (1868.—Villa Maria (type locality); Villa Bella de Mattogrosso; Engenho do Gama, Rio Guapore).

No. 925. ♀ imm., Marnius, Rio Machados, 12. vi. 1908. "Iris black, feet black, bill black, below grey."—Wing 59; tail 38; bill 16 mm.

This bird agrees in every detail with some of Natterer's females (Villa Maria; Vienna Museum), and differs from the preceding species by its smaller size, and by having a large, concealed white interscapular patch, and broad white tips to the rectrices, about 5 mm. in width. It is a remarkable fact that the Rio Machados should possess a species different from that found on the main stream. A similar case has already been discussed, cf. *Pipra aureola fasciicauda* and *P. a. calamae*, p. 303.

H. maculicauda is evidently the southern and western representative of

* *Myiomanes lugubris* Cabanis, *Arch. Naturg.* 13. i. p. 211 (1847.—"Pará").

† *Heterocnemis* (?) *hypoleuca* Ridgway, *Proc. U.S. Mus.* x. 1887. [p. 523 (1888.—Diamantina, Santarem).

H. melanopogon, but I do not venture to employ a trinomial name on the evidence of our present knowledge. *H. maculicauda* ranges from the Rio Machados and the headwaters of the Madeira (Rio Guaporé, etc.) through Western Brazil (Purús, Juruá; Olivença on the Rio Solimões) to Eastern and Northern Peru. *H. melanopogon* inhabits the countries north of the Amazon Valley (Mexiana Island, the Guianas, the Oriuoco and Rio Negro district), but descends along the Madeira as far as Humaytha (left bank), Calama and S. Isabel (right side). *H. maculicauda*, however, has also been found in the Pará district (Prata, Rio Acará, Capim)* and on the Tapajóz.† Three specimens before me, a couple from Pará and a male from Goyana, Tapajóz, agree with Upper Amazonian skins in size and in the possession of a large white interscapular patch; but the white ends to the rectrices are decidedly narrower, though much wider than in *H. melanopogon*. A larger series from the Lower Amazons is required to prove the constancy of this character or otherwise.

[240. *Hypocnemis hemileuca* Scl. & Salv.

Hypocnemis hemileuca Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1866. p. 186 (1866.—Lower Ucayali).

Terenura melanoleuca Pelzel, *Zur Orn. Bras.* ii. p. 157 (1868.—Borba, Rio Madeira).

Right bank: Borba (Natterer).

I have shown ‡ *T. melanoleuca* to be synonymous with *H. hemileuca*. Mr. Hoffmanns did not meet with this rare species, which is still only known from the type, obtained by E. Bartlett; the two adult males taken many years ago by Natterer near Borba; and the type of *Myrmochanes hypoleucus* § from Reyes, N.E. Bolivia. There is a fifth, hitherto unrecorded specimen in Count Berlepsch's collection. It was secured in Eastern Ecuador by one of the men employed by the late Henry Whitely, of Woolwich, but its exact place of capture is not known.]

[241. *Dichrozona cincta* (Pelz.).

Cyphorhinus (Microcerculus) cinctus Pelzel, *Zur Orn. Bras.* i. pp. 47, 65 (1867.—Borba, Rio Madeira; São Joaquim, Rio Negro); cf. Hellmayr, *Nor. Zool.* xiii. 1906. p. 348 (crit.).

Rio Madeira: Borba (Natterer).

This species is represented by but few specimens in scientific collections. Natterer obtained a male at São Joaquim on the upper Rio Negro, near the mouth of the Uaupés, and a female at Borba, in January 1830. The type of *Dichrozona zononota* Ridgw. || was shot by Mr. C. B. Riker at Diamantina, near Santarem, on the Rio Tapajóz, and the original examples of *Hypocnemis stellata* Scl. & Salv. ¶ were taken at a place called Sarayaçu, Eastern Ecuador, by one of Buckley's hunters. More recently, I have examined an immature female collected at Uby no Cachoeira, Rio Purús, June 17, 1903, and preserved in the Pará Museum.** Prof. von Ihering records a male from the Rio Juruá, secured May 30, 1902.††]

* Snethlage, *Journ. f. Orn.* 1907. p. 287.

† Eadem, *l.c.* 1908. p. 513.

‡ *Nor. Zool.* xiii. 1906. p. 348.

§ Allen, *Bull. Amer. Mus.* ii. p. 95 (1889.—Reyes, N.E. Bolivia).

|| *Proc. U.S. Mus.* x. 1887. p. 524 (1888).

¶ *Proc. Zool. Soc. Lond.* 1880. p. 160.

** *D. cincta* Snethlage, *Journ. f. Orn.* 1908. p. 17.

†† *Microcerculus cinctus* Ihering, *Revis. Mus. Paul.* vi. 1904. publ. 1905. p. 431.

242. *Cercomacra sclateri* Hellm.

Cercomacra sclateri Hellmayr, *Nov. Zool.* xii. pp. 286, 288 (1905.—Chyavetas, East Peru).

C. caerulescens (nec Vieillot) Pelzeln, *l.c.* p. 84 (Borba, Salto do Girao, Rio Madeira ; Mattogrosso, Rio Guaporé).

Nos. 90, 99, 401, 468. ♂♂ ad., Calama, 22, 23. vi., 16, 27. viii. 1907.—Wing 64—66 ; tail 69—70 ; bill 17—18½ mm.

No. 545. ♂ ad., Jamarysinho, Rio Machados, 13. ix. 1907.—Wing 66 ; tail 66 ; bill 17 mm.

Nos. 170, 571. ♀♀ ad., Calama, 6. vii. 1907 ; Jamarysinho, 18. ix. 1907.—Wing 60 ; tail 64 ; bill 16½, 17 mm.

“ Iris grey or brown, feet black, bill black, lower mandible grey in females.”

Typical of *C. sclateri*, with the bend of the wing largely white, and with distinct white apical margins to the upper wing-coverts. Two of the males are very nearly as dark slate-grey as the type from Chyavetas, while the others are paler schistaceous, more like the specimens from Pará and Itaituba. An adult male from the Rio Purús (Bom Lugar) is scarcely paler underneath than Peruvian examples, but in the colour of the upper parts it resembles those from the Lower Amazons.

To the range as given in *Nov. Zool.* xii. p. 288 the following localities are to be added :—

N. Brazil : São Antonio do Prata (Hoffmanns, Snethlage), Rio Capim, Rio Guamá (Snethlage) ; Rio Tapajóz : Itaituba (Hoffmanns), Villa Braga (Snethlage). W. Brazil : Calama, Jamarysinho, Rio Madeira (Hoffmanns) ; Bom Lugar, Rio Purús (Snethlage), Teffé, Rio Solimões (Hoffmanns). Besides, I have examined, in the Paris Museum, 2 ♂♂ ad., 3 ♀♀ from Sarayaçu, Eastern Peru, brought back by the Castelnau Expedition.

243. *Cercomacra nigrescens approximans* Pelz.

[*Percnostola nigrescens* Cabanis & Heine, *Mus. Heinean.* ii. p. 10 (1859.—Cayenne).]

Cercomacra approximans Pelzeln, *Zur Orn. Bras.* ii. pp. 85, 158 (1868.—Engenho do Gama and Mattogrosso, Rio Guaporé).

C. nigrescens approximans Hellmayr, *Nov. Zool.* xiv. 1907 p. 372 (Borba).

No. 402. ♂ ad., Calama, 16. viii. 1907.—Wing 68 ; tail 64 ; bill 18 mm.

Nos. 640, 642. ♂ imm., ♂ juv., S. Isabel, Rio Preto, 8. x. 1907.

Nos. 615, 636, 661. ♀♀ ad., S. Isabel, Rio Preto, 3, 7, 10. x. 1907.—Wing 63—65 ; tail about 57 ; bill 16½—17 mm.

No. 795. ♂ juv., Allianca, 20. xi. 1907.—Wing 65 ; tail 64 ; bill 16 mm.

The series agrees perfectly with others from Itaituba (Tapajóz) and some of Natterer's typical specimens from the Guaporé. Peruvian skins (Pebas, Guayabamba, Huambo, and Garita del Sol) are slightly different, the males being darker, more sooty both above and below, the females decidedly rufescent-brown (instead of dull brownish olive) on the back. Whether these characters are constant I am not in a position to say, owing to my material being too inadequate. *C. serpa* (Scl.) is very nearly allied to *C. n. approximans*. Although it would appear that both species occur side by side in Eastern Ecuador as well as in certain districts of Peru, yet their relationship is not at all clearly understood.

C. n. approximans ranges, in the east, to the left bank of the Tapajóz.

244. *Formicivora grisea grisea* (Bodd.).

Turdus griseus (sic) Boddaert, *Tabl. Pl. enl.* p. 39 (1783.—ex D'Aubenton, *Pl. enl.* 643. fig. 1 = ♂ : Cayenne).

Formicivora grisea Pelzeln, *l.c.* p. 83 (Engenho do Gama, [Villa Bella de] Matogrosso, Rio Guaporé ; Borba, Rio Madeira).

Nos. 600, 602, 719. ♂ ♂ ad., ♂ imm., S. Isabel, Rio Preto, 1, 19. x. 1907.—Wing 55—56 ; tail 47—49 ; bill 13½—15 mm.

Nos. 616, 618, 619, 637. ♀ ♀, S. Isabel, 4, 7. x. 1907.—Wing 54—55 ; tail 47—49 ; bill 13—14 mm.

“ Iris brown, feet plumbeous or grey, bill black.”

Identical with specimens from Cayenne, British Guiana, Pará, and Maranhão. The Rio Madeira appears to form the western limits of its range south of the Amazons ; the most southerly localities in Amazonia as yet known are Engenho do Gama and São Vicente, on the Guaporé, where Natterer obtained a large suite.

I hope to discuss the various geographical races of the *grisea* group in another paper shortly to appear.

[245. *Formicivora rufa* (Wied).

Cf. *Nov. Zool.* xiv. 1907. p. 372 (Humaytha).

Left bank of the Madeira : Humaytha (Hoffmanns).

Widely distributed in Central South America, ranging to the north as far as Santarem, and eastward to Bahia.]

246. *Formicivora quixensis bicolor* Pelz.

[*Thamnophilus quixensis* Cornalia, *Vertebr. Syn. Osculati Coll.* p. 12 (1849.—Quixos, Eastern Ecuador).]

Formicivora bicolor Pelzeln, *Zur Orn. Bras.* ii. pp. 84, 156 (1868.—Engenho do Gama, Rio Guaporé ; Destacamento do Ribeirão, Salto do Girao, Borba, Rio Madeira) ; Hellmayr, *Nov. Zool.* xiv. 1907. p. 373 (Borba).

Nos. 44, 91, 484, 744. ♂ ♂ ad., Calama, 15, 22. vi., 29. viii., 1. xi. 1907. “ Iris dark brown, feet and bill black.”—Wing 54½—56 ; tail 50—53 ; bill 14 mm.

F. q. bicolor has lately been met with in various localities south of the main valley of the Amazons. Mr. Hoffmanns obtained it at Tefñé (Rio Solimões), near Itaituba, left bank of the Rio Tapajós, as well as at Borba. Prof. Ihering received specimens from the Rio Jurná,* and Miss Snethlage records it from Bom Lugar, Pará.†

The newly described *F. consobrina microsticta* Berl.,‡ from Cayenne, is also much more nearly related to *F. bicolor* than to *F. consobrina*, differing only in its stouter, broader bill and slightly shorter white tips to the outer rectrices. The pattern of the wing-coverts is exactly the same in both forms. *F. consobrina*, from Western Ecuador and Western Colombia, on the other hand, has much less white in the tail, the white tips being only about half as long, and the white spots on the greater upper wing-coverts are much larger, as correctly pointed out by Count Berlepsch. I have examined, in addition to the typical series of *F. microsticta* in Tring, two adult males secured at Saint-Jean-du-Maroni by M. Le Moult, in the collection of the Munich Museum.

* *Revista Mus. Paul.* vi. 1905. p. 442.

† *F. bicolor* Snethlage, *Journ. f. Orn.* 1904. p. 16—*F. consobrina* (!) eadem, *l.c.* p. 24 ; eadem, *Bol. Mus. Goeldi* v. 1908. p. 57.—I have examined the examples, which are, of course, referable to *F. bicolor*. *F. consobrina* is confined to Western Ecuador and W. Colombia.

‡ *Nov. Zool.* xv. 1908. p. 157 (Rio Approuague, Cayenne).

F. q. quixensis (Cornalia), from Eastern Ecuador, has the white apical spots on the greater wing-coverts nearly as large as *F. q. consobrina*, but the white ends of the outer rectrices are rather longer, and the dimensions greater. The female, moreover, differs at a glance from those of *F. bicolor*, *microsticta*, and *consobrina* by having the throat and sides of the head, like the pileum and back, black with a slight gloss, while, in its allies, the throat is ferruginous or chestnut-rufous like the rest of the belly, the sides and top of the head are slate-grey, etc.

All the black-and-white *Formicivora* represent each other geographically, and are therefore more properly designated by trinomials.

247. *Myrmeciza hemimelaena pallens* Berl. & Hellm.

[*Myrmeciza hemimelaena* Slater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 48 (1857.—Bolivia).]

Formicivora ruficauda (nec *Myiothera ruficauda* Wied, 1831) Pelzel, *Zur Orn. Bras.* ii. p. 155 (1868.—Engenho do Gama, Villa Bella de Matogrosso, Western Matogrosso); Hellmayr, *Verhandl. Zool.-Bot. Gesellsch. Wien* liii. 1903. p. 213.

Myrmeciza hemimelaena pallens Berlepsch & Hellmayr, *Journ. f. Ornith.* 1905. p. 32 (January 1905.—Matogrosso).

Drymophila juruana Ihering, *Revist. Mus. Paulista*, vi. 1904. p. 442 (May 1905.—Rio Juruá: new name for *F. ruficauda* Pelz, preoccupied).

Nos. 247, 311, 319. ♂♂ ad., ♂ imm., Calama, 22, 31. vii., 1. viii. 1907.—Wing 56—57; tail 38; bill 15 mm.

No. 555. ♂ ad., Jamarysinho, 15. ix. 1907.—Wing 56; tail 34; bill 14 mm.

Nos. 970, 1022. ♂♂ ad., Maruins, 4, 16. vii. 1908.—Wing 57—58; tail 34—36; bill 14½—15 mm.

Nos. 263, 316. ♀♀ ad., Calama, 24. vii., 1. viii. 1907.—Wing 53, 54; tail 37, 39; bill 14½ mm.

No. 567. ♀ imm., Jamarysinho, 18. ix. 1907.—Wing 54; tail 35½; bill 14 mm.

No. 980. ♀ ad., Maruins, 9. viii. 1908.—Wing 55; tail 35; bill 14 mm.

"Iris brown, feet flesh-colour, light yellow or greyish yellow, bill black."

The males differ from a series of *M. h. hemimelaena* from Bolivia and South-Eastern Peru by their paler, cinnamonaceous instead of castaneous, colour of the back and wings, clearer cinnamon-rufous tail, and much lighter, fulvescent, not deep rufescent brown, flanks. Besides, the black is restricted to the throat and foreneck (while, in the typical race, it is continued over the chest), and the white area on the breast and middle of abdomen much more extended. The other character alluded to by Berlepsch & Hellmayr, viz. the colour of the pileum and nape, however, does not seem to be quite constant, for one or two specimens from the Rio Madeira are not different on this score from typical *M. h. hemimelaena* from Bolivia.

The females are always readily distinguishable from those of the latter form by having the throat and foreneck very much paler, ochraceous instead of ferruginous, the middle of the belly nearly white instead of ochraceous buff, and all the upper parts much lighter-coloured.

The range of the two forms is as follows:—

(a) *M. hemimelaena hemimelaena* Sel.

North Bolivia: San Mateo, Yungas of Cochabamba (G. Garlepp—Mus. H. v. B.), Yuracarès (D'Orbigny*). South-Eastern Peru: Marcapata, Cuzco (O.

* *Thamnophilus guttatus* (error!) D'Orbigny, *Voyage, Oiseaux* p. 177.—I have examined D'Orbigny's original example, an adult male, in the Paris Museum, and found it identical with others from S.E. Peru.

Garlepp—Mus. H. v. B., Vienna). North Peru: Xeberos (Bartlett), Huambo (Stolzmann), R. Hualaga. [? Eastern Ecuador: Sarayaen.]

N.B.—Specimens from Huambo agree with the Bolivian ones. Having never seen Ecuadorian birds, I cannot say whether they have been correctly referred to the present form. In the Chanchamayo district, Central Peru, a nearly allied species, *M. spodiogastra* Berl. & Stolz.,* takes its place.

(b) *M. hemimelaena pallens* Berl. & Hellm.

Western Brazil: Engenho do Gama, Villa Bella de Mattogrosso, on the Rio Guaporé (Natterer); Calama, Rio Madeira; Jamarysinho, Maruias on the Rio Machados (Hoffmanns); Rio Jurná (Garbe).

[248. *Myrmeciza ferruginea* (P. L. S. Müll.).

Turdus ferrugineus P. L. S. Müller, *Natursyst.* Suppl. p. 141 (1776.—based on “Merle à cravate, de Cayenne,” D'Aubenton, Pl. enl. 560. fig. 2.—Cayenne).

Turdus cinnamomeus Gmelin, *Syst. Nat.* 1. ii. p. 825 (1789.—based on the same).

Myrmeciza cinnamomea Pelzeln, l.c. p. 87 (Borba).

Right bank: Borba (Natterer). This is the most southerly locality from which the species has been recorded. Miss Sneath,† lately, secured a male at Villa Braga, on the left bank of the Tapajóz. It is common in Cayenne, Surinam, and British Guiana. Mr. Hoffmanns sent a female from Obidos, north side of the Amazons.]

249. *Anoplops hoffmannsi* Hellm.

Anoplops hoffmannsi Hellmayr, *Bull. B. O. C.* xix. p. 52 (1907.—Borba, Rio Madeira); idem, *Nov. Zool.* xiv. 1907. p. 387. pl. iii. figs. 2, 3 (♂ ♀).

Nos. 40, 126. ♂♂ ad., Calama, 14, 29. vi. 1907.—Wing 79½, 81; tail 53, 54; bill 18 mm.

Nos. 118, 119. ♂♂ imm., Calama, 28. vi. 1907.—Wing 81; tail 52, 54; bill 17½—18 mm.

No. 320. ♂ juv., Calama, 1. viii. 1907.—Wing 78; tail 51; bill 18 mm.

No. —. ♂ ad., Allianca, xi. 1907.—Wing 80½; tail 53; bill 17 mm.

No. 944. ♂ imm., Maruias, 26. vi. 1908.—Wing 79; tail 54; bill 17½ mm.

Nos. 24, 25, 54, 115, 116, 117, 384. ♀♀ ad., imm. et juv., Calama, 12, 17, 28. vi., 12. viii. 1907.—Wing 75—80; tail 50—54; bill 17—18 mm.

Nos. 762, 764. ♀ ad., ♀ juv., Allianca, 8. xi. 1907.—Wing 80, 74; tail 52½, 50; bill 18 mm.

Nos. 894, 941. ♀♀ ad., Maruias, 1, 26. vi. 1908.—Wing 76, 78; tail 52, 53; bill 17 mm.

“Iris greyish brown or brown, feet plumbeous or black, naked space round the eye yellowish green. Bill black, lower mandible grey in the females.”

Mr. Hoffmanns now sent us a fine series of this species, which he had discovered on his first expedition to the Rio Madeira in 1906. Adult males have the top of the head and crest deep black, the back very pale (greyish) olive, and the abdomen slate-grey with a slight brownish tinge on flanks and crissum. In immature birds the forehead and crest are more or less mixed with chestnut, and the back as well

* *Ibis* 1894. p. 397.

† *Journ. f. Orn.* 1908. p. 512.

as the belly strongly washed with olive- or rufescent brown. Sometimes a few narrow, blackish cross-bands are to be seen here and there on the mantle. The young male (No. 320) is even more decidedly rufescent both above and below, with the forehead and crest uniform dull chestnut.

Young females differ from adult ones by having the upper wing-coverts distinctly rusty brown with the black subapical bands much narrower, and the apical margins less defined as well as of a deeper, more cinnamomeous tinge.

A. hoffmannsi is as yet only known from the right bank of the Rio Madeira. It is strictly congeneric with *A. gymnops* (Ridgw.),* *A. cristata* (Pelz.),† and *A. berlepschi* Snetbl.,‡ all of which agree perfectly in structural details, but I do not see how this group can be separated generically from *Anoplops*.

[250. *Anoplops salvini* (Berl.).

Cf. Hellmayr, *Nov. Zool.* xiv. 1907. p. 385 (Humaytha).

Left bank of the Rio Madeira: Humaytha, where Mr. Hoffmanns obtained a large series on his first journey in 1906.]

[251. *Anoplops melanosticta* (Scl. & Salv.).

Pithys melanosticta Slater & Salvin, *Proc. Zool. Soc. Lond.* 1880. p. 160 (1880.—Sarayaçu, East Ecuador), descr. orig. ♀.

Anoplops melanosticta Hellmayr, *Nov. Zool.* xiv. 1907. p. 386. pl. iii. fig. 1 (= ♂), descr. ♂ ♀ (Humaytha).

Gymnophthys melanosticta Snetblage, *Journ. f. Ornith.* 1908. p. 17 (Cachoeira, Purús).

G. purusianus Snetblage, *Bol. Mus. Goeldi* v. no. 1. p. 59 (1908.—Cachoeira, Purús), descr. ♂.

Left bank of the Rio Madeira: Humaytha. Also obtained at Cachoeira, Rio Purús, on the Rio Jurná, and near Sarayaçu, Eastern Ecuador (type). When Count Berlepsch, some years ago, sent me one of the Purús specimens for comparison with the type in the British Museum, I at once suggested the probability of their being male and female of the same species. This view has been fully confirmed by the sexed specimens which Mr. Hoffmanns, shortly afterwards, forwarded to the Tring Museum. *G. purusianus* is, therefore, a synonym of *A. melanosticta*, the supposed specific characters being those of the adult male.

An immature male from the Rio Jurná (in the Museu Paulista), which I have lately had an opportunity of inspecting, has the belly very nearly as dark sepia-brown as the type from Sarayaçu.]

252. *Rhopoterpe torquata* (Bodd.).

Formicarius torquatus Boddart, *Tabl. Pl. enl.* p. 43 (1783.—based on "Le Fourmillier, de Cayenne" D'Aubenton, *Pl. enl.* 700. fig. 1: Cayenne).

Rhopoterpe torquata Pelzeln, *l.c.* p. 90 (Borba).

Nos. 954, 956, 963, 991. ♂ ♂ ad. and imm., Marins, 29. vi., 10. vii. 1908. "Iris brown, feet greyish brown, bill black."—Wing 91—98; tail 39—41; bill 23—24 mm.

* *Rhegmatorhina gymnops* Ridgway, *Proc. U.S. Nat. Mus.* x. 1887. p. 525 (1888.—Diamantina, Santarem, right bank of Tapajóz). Lately rediscovered by Miss Snetblage on the Rio Jamauchim, a tributary of the Tapajóz.

† *Pithys cristata* Pelzeln, *Zur Orn. Bras.* ii. p. 166 (1868.—Rio Vaupé, upper Rio Negro).

‡ *Anoplops berlepschi* Snetblage, *Orn. Monatsber.* xv. p. 162 (1907.—Villa Braga, left bank of the R. Tapajóz).

Nos. 955, 959, 960, 961, 971, 989, 990. ♀♀ ad. and imm., Maruins, 29, 30. vi., 5, 10. vii. 1908. "Iris brown, feet grey or greyish brown, bill black."—Wing 91—99; tail 38—42; bill 22½—24 mm.—"Lives on the ground" (W. H.).

The majority of the skins have the apical bands of the upper wing-coverts rather deeper, more ochraceous buff, than Guianan specimens; in immature birds these edges are much narrower and paler in colour. All examples (of both sexes) have a pure white band across the inner web of the remiges.

R. torquata has rather a wide range in South America east of the Andes. It is common in French and British Guiana; Natterer met with it at Barra do Rio Negro (= Manáos) and near Borba; Buckley obtained specimens at Sarayaçu, in Eastern Ecuador; Linden procured it near Santarem,* and Snelhage near Monte Alegre on the Amazons,† in Villa Braga, Tapajóz, as well as at Alcobaca, Tocantins.‡ In Western Ecuador, Colombia, and Costa Rica no representative of the genus has as yet been ascertained to occur, though in Nicaragua a very near ally, *R. stictoptera* Salvin,‡ is met with. It differs by having the piliolum much duller, rufescent brown with distinct blackish edges to the feathers (instead of nearly uniform deep rufous brown); the upper and under tail-coverts dull rufescent brown (not bright cinnamon-rufous); the rectrices dull olive-brown; the pale band across the inner web of the remiges and the under wing-coverts bright buff (the latter being, in *R. torquata*, banded with black and white), etc., etc. The female, like that of *R. torquata*, has the throat and foreneck ferruginous (not black). There are two ♂♂ and one ♀ from Nicaragua (Matagalpa and Rio Grande) in the Tring Museum.

[253. *Phlegopsis nigromaculata nigromaculata* (Lafr. & D'Orb.).

Cf. Hellmayr, *Nov. Zool.* xiv. 1907. p. 388.

Left bank of the Rio Madeira: Humaytha (Hoffmanns). Not obtained on his second trip.]

254. *Phlegopsis nigromaculata bowmani* Ridgw.

Phlegopsis bowmani (Riker MS.) Ridgway, *Proc. U.S. Nat. Mus.* x. 1887. p. 524 (1888.—Diamantina near Santarem, right bank of Tapajóz); Snelhage, *Journ. f. Orn.* 1908. p. 513 (Villa Braga, left bank of Tapajóz).

P. nigromaculata (nec Lafr. & Orb.) Pelzeln, *l.c.* p. 90 (part.: Borba).

Phlegopsis nigromaculata bowmani Hellmayr, *Nov. Zool.* xiv. 1907. p. 388 (Borba).

Nos. 26, 60, 65, 230, 313, 376, 385. ♂♂ ad., imm., and juv., Calama, 12, 17. vi., 16, 31. vii., 11, 12. viii. 1907. "Iris brown, feet and bill black, naked space round the eye bright red."—Wing 87—94; tail 57—62; bill 20—21 mm.

Nos. 43, 55, 62, 69, 266, 558. ♀♀ ad. and imm., Calama, 14, 17, 18. vi., 24. viii., 17. ix. 1907. Soft parts as above.—Wing 86—90; tail 57—62; bill 19—21 mm.

Nos. 748, 756. ♂♂ ad., Allianca, 6, 7. xi. 1907.—Wing 91, 92; tail 56, 62; bill 20 mm.

Nos. 746, 749. ♀♀ ad., Allianca, 5, 6. xi. 1907.—Wing 84, 85; tail 57, 60; bill 18, 19 mm.

Nos. 976, 994, 1025. ♂♂ ad., ♂ imm., Maruins, 6, 10, 16. vii. 1908.—Wing 91—93; tail 62—63; bill 20 mm.

* Allen, *Bull. Essex Inst.* viii. 1876. p. 80.

† *Journ. f. Orn.* 1907. p. 287; *l.c.* 1908. pp. 513, 533.

‡ *Bull. B. O. C. i.* p. xxxii. (1893.—Santo Domingo, Nicaragua).

No. 1065. ♀ ad., Manicoré (Las Onças), 20. viii. 1908.—Wing 88; tail 59; bill $19\frac{1}{2}$ mm.

This large series differs from Tefé and Humaytha specimens of *P. n. nigromaculata* in the shape of the black markings on the back, and especially on the upper wing-coverts, as described by me *l.c.* p. 388. While, in most specimens, the ground-colour above is brighter, a fine golden yellowish olive, **some** examples from Calama are hardly to be distinguished on this score. The amount of white on the bend of the wing is much greater than in *P. n. nigromaculata*.

Immature birds have the black spots on the rump less defined and slightly edged with rusty, the black colour below is more restricted, etc. Young birds (*e.g.* No. 376) are characterized by the fluffy greater upper wing-coverts having a broad central streak of black, reaching nearly to the base, bordered on each side by a distinct cinnamon-rufous margin; the upper parts, too, are rather rufescent brown, and the olive-brown of the flanks is far more extended.

P. n. bowmani replaces the typical form on the right bank of the Rio Madeira, ranging eastward to the Tapajóz, where it apparently occurs on both sides of the river. I have, however, not yet examined specimens from the type-locality (Santarem), and therefore cannot vouch for the correct identification of the present series.

[255. *Phlegopsis erythroptera* (Gould).

Hellmayr, *Nov. Zool.* xiv. 1907. p. 389 (Humaytha).

Left bank of the Rio Madeira: Humaytha (Hoffmanns).]

[256. *Phlegopsis borbae* Hellm.

Hellmayr, *l.c.* p. 389 (Borba).

Right bank: Borba (Hoffmanns). It is to be regretted that Mr. Hoffmanns did not obtain additional material of this species, of which the type, an immature male, remains unique in the Tring Museum.]

257. *Formicarius colma* (Bodd.).

Formicarius Colma Boddaert, *Tabl. Pl. enl.* p. 44 (1783.—based on "Le Colma, de Cayenne"

D'Aubenton, *Pl. enl.* 703. fig. 1 = ♀ ad.: Cayenne); Hellmayr, *Nov. Zool.* xiv. p. 390 (Humaytha).

F. nigrifrons Gould.

Nos. 912, 975. ♂♂ ad., Maruins, Rio Machados, 7. vi., 6. vii. 1908.—Wing 85, 89; tail 53; bill 17, 18 mm.

Nos. 291, 705. (♂♂), Calama, 29. vii., S. Isabel, 16. x. 1907.—Wing 85, 87; tail 53; bill 18 mm.

Nos. 17, 71. ♂ juv., juv., Calama, 10, 18. vi. 1907.

"Iris brown, feet brown, bill black."

The series is typical of *F. colma*, the forehead in the adults being broadly glossy black. Below, the black extends down over the chest, as is usually the case in Upper Amazonian specimens, but cf. my remarks *l.c.* It is surprising to find this species also on the right bank, where we should have expected *F. ruficeps amazonicus* alone to occur. This fact suggests their specific distinctness. On his first expedition in 1906 Mr. Hoffmanns met with *F. colma* near Humaytha, left bank of the Madeira.

[258. *Formicarius ruficeps amazonicus* Hellm.

Cf. *Nor. Zool.* xiv. p. 390 (Borba).

Right bank : Borba (Natterer, Hoffmanns); Engenho do Gama, Rio Guaporé (Natterer).

F. r. amazonicus differs from the preceding species by having the forehead cinnamon-rufous like the crown. Moreover, the female has the throat black, with but a few narrow, concealed white shaft-lines. In *F. colma* ♀ the lores and throat are entirely white.]

259. *Formicarius analis analis* (Lafr. & D'Orb.).

Myiothera analis Lafresnaye & D'Orbigny, *Syn. Ar.* i. in *Mag. Zool.* 1837, cl. ii. p. 14 (1837.—Yuracares, Chiquitos, East Bolivia); Pelzeln, *Zur Orn. Bras.* ii. p. 99 (Salto do Girao, Borba).

Formicarius a. analis Hellmayr, *Nor. Zool.* xiv. p. 391 (Humaytha, Borba).

No. 503. ♂ ad., Calama, 1. ix. 1907.—Wing 88; tail 50; bill 21 mm.

No. 622. ♂ ad., S. Isabel, 4. x. 1907.—Wing 90; tail 55; bill 21 mm.

Less rufous on the upper parts than specimens from the Rio Purús and Pará, but not otherwise different. About the geographical variation and range of this form and its nearest ally, *F. a. crissalis*, cf. *Nor. Zool.* xiv. pp. 391–2.

260. *Grallaria varia varia* (Bodd.).

Formicarius varius Boddaert, *Tabl. Pl. enl.* p. 41 (1783.—ex D'Aubenton, *Pl. enl.* 702 : Cayenne).

No. 47. ♂ juv., Calama, 15. vi. 1907.—Wing 114; tail 43; tars. 43; bill 25 mm.

No. 46. ♀ imm., Calama, 15. vi. 1907.—Wing 120; tail 45; tars. 43½; bill 24 mm.

“Iris dark brown, feet and bill greyish brown.”

Both are immature birds with distinct buff apical spots on the median and greater wing-coverts, and with dusky subapical cross-bands on the upper tail-coverts and rectrices. They differ from two other specimens [ex Cayenne and British Guiana (Camacusa)] in the following points: the foreneck is paler, olive-brown (instead of dark chocolate); the back lighter and more greenish, with the buff shaft-lines more clearly defined; the upper tail-coverts and rectrices are much brighter, clear cinnamon-rufous (instead of dull rufous brown); the axillaries and under wing-coverts paler orange, etc. In other respects they agree closely with the typical Guianan birds. Until adult specimens come to hand it is impossible to say whether the Madeira form is separable from *varia* or not. *G. v. cinereiceps* Hellm.,* from the upper Rio Negro, however, is perfectly distinct by its generally much brighter, ochraceous under parts, clear rufous brown throat and foreneck, etc. The type in the Vienna Museum is still unique.

G. v. varia is new to the Brazilian fauna.

261. *Grallaria brevicauda* (Bodd.).

Formicarius brevicauda Boddaert, *Tabl. Pl. enl.* p. 44 (1783.—ex D'Aubenton, *Pl. enl.* 706. fig. 1 : Cayenne).

Grallaria brevicauda Pelzeln, *l.c.* p. 91 (Borba).

Nos. 216, 255. ♂ ad., ♂ imm., Calama, 13, 23. vii. 1907.—Wing 89, 85; tail 40, 41; bill 20½, 19 mm.

* *Verhandl. Zool. Bot. Gesellsch. Wien* liii. p. 218 (1903.—Marabitanas, upper Rio Negro).

No. 324. ♀ juv., Calama, 3. viii. 1907.—Wing 85; tail 38; bill 19 mm.

“ Iris brown or blackish, feet pale grey, bill black, below grey.”

Specimens from the Rio Madeira (Calama, Borba) and Manáos (= Barra do Rio Negro) are rather more rufescent brown above than a series from Cayenne, British Guiana, and Marabitanas (upper Rio Negro), while others from the Jurná and Javarri Rivers, and from Peru (Chuchurras, Huánuco) have the upper parts paler, more olivaceous. The latter apparently represent *G. brevicauda minor* Tacz.,* though the differences in size do not prove to be constant. A larger series is required to establish the geographical races of *G. brevicauda*.

262. *Grallaria macularia diluta* n. subsp.

[*Pitta macularia* Temminck, *Pl. col. Genus Pitta*, 2^{ème} section, esp. 11 (1823.—“Brésil,” errore! we substitute *Cayenne*).]

Grallaria macularia berlepschi (nec Hellmayr 1933!) Sneath, *Orn. Monber.* xv. p. 195 (1907.—Ourém, Rio Guamá, near Pará).

G. macularia (nec Temminck) Pelzeln, *Le.* p. 91 (Rio Negro below Thomar).

No. 272. ♀ imm., Calama, 26. vii. 1907. “ Iris dark brown, feet plumbeous, bill black, below grey.”—Wing 88; tail 36; tars. 36; bill 19 mm.

Similar to *G. m. macularia* of Cayenne and British Guiana, but wing decidedly, tail slightly longer; sides and flanks very much paler, dull ochreous yellow with an olive tinge (instead of deep ochraceous).

Type in the Vienna Museum; No. 16440, ♂ ad., Rio Negro, below Thomar, December 6, 1830. Collected by J. Natterer.—Wing 89; tail 37; tars. 35½; bill 20 mm.

Mus. Goeldi: ♂ ad., Ourém, Rio Guamá, December 5, 1903. *Type* of *G. m. berlepschi* Sneath.—Wing 90; tail 37; tars. 37; bill 19 mm.

This form had been separated by Miss Sneath under the preoccupied name *G. m. berlepschi*. I have examined the original example from Ourém, and found it perfectly identical with Natterer's bird. The female from Calama, although immature, shows the same differences. In a series of nine specimens of *G. m. macularia* from Cayenne and British Guiana the wing varies from 81 to 86, the tail from 29 to 34 mm.; the sides and flanks are invariably deep ochraceous.

I suspect that the birds from Loretoyacu † and Iquitos, ‡ North Peru, will also turn out to belong to *G. m. diluta*, unless they be referable to *G. fulviventris* Sel. § The latter species, of which I have seen two specimens, the type and another from Sarayacu, Eastern Ecuador, in the British Museum, differs from *G. m. macularia* and *G. m. diluta* by lacking the ochreous yellow apical spots to the upper wing-coverts, and the ochreous edges to the outer primaries and the outermost bastard quill; the cheeks and ear-coverts are uniform slaty blackish; the tail is russet-brown (instead of brownish olive), the chest deep ochraceous buff like the sides (instead of white); furthermore, there is no orange rim round the eye nor any trace of the black maxillary stripe, etc. In the amount of black spotting on the breast, as well as in the dark slate-grey cap, it agrees with the *macularia* group.

G. berlepschi Hellm. || resembles *G. fulviventris* in having the chest deep

* *Proc. Zool. Soc. Lond.* 1882. p. 33 (1882.—Yurimaguas, Peru).

† Bartlett, *P. Z. S. Lond.* 1882. p. 371: *G. macularia*.

‡ Schater, *Cat. Birds Brit. Mus.* xv. p. 324: *G. macularia*.

§ Schater, *P. Z. S. Lond.* xxvi. 1858. p. 68 (1858.—Rio Napo, Eastern Ecuador).

|| *Verhandl. Zool. Bot. Gesellsch. Wien* liii. p. 218 (1903.—Engenho do Gama, Matto Grosso).

ochraceous buff like the sides, but may at once be distinguished by the following characters: the top of the head is pale brownish olive like the back (not slate-grey); the cheeks and ear-coverts are light ochreous (instead of slate-blackish); the upper mandible light horn-colour (instead of blackish), etc., etc. Besides the type from Engenho do Gama, Western Mattogrosso, I have examined an adult female and a young male which were obtained at Bom Lugar, Rio Purús, in March 1904, and are actually preserved in the Pará Museum.

263. *Conopophaga melanogaster* Ménétr.

Conopophaga melanogaster Ménétríés, *Mém. Ac. Sci. St. Pétersh.* (6) i. (*Sci. Nat.*) p. 537. tab. 15. fig. 2 (1835.—"près de Cayaba," locality probably erroneous); Pelzeln, *Zur Ornith. Bras.* ii. p. 92 (Borba); Hellmayr, *Nov. Zool.* xiv. p. 22 (Itaitúba, Rio Tapajóz); Sneath, *Journ. f. Ornith.* 1908. p. 514 (Villa Braga, Tapajóz).

C. rusbyi Allen, *Bull. Amer. Mus.* ii. p. 96 (1889.—Reyes on the Rio Beni, North Bolivia), descr. ♀.

Nos. 314, 178. ♂ ad., ♂ vix ad., Calama, 8. vi., 1. viii. 1907. "Iris brown, feet bluish black or plumbeous, bill black."—Wing 81, 80; tail 40; tars. 33; bill 18 mm.

No. 613. ♂ imm., S. Isabel, Rio Preto, 3. x. 1907. "Iris dark brown, feet plumbeous, bill black."—Wing 78; tail 42; bill 17 mm.

No. 993. ♂ ad., Marnius, 19. vii. 1908. "Iris dark brown, feet dark grey, bill black."—Wing 80; tail 42; tars. 32; bill 18 mm.

No. 958. ♀ ad., Marnius, 30. vi. 1908. "Iris brown, feet plumbeous, bill black."—Wing 79; tail 42; tars. 32; bill 17½ mm.

Adult males have the lower surface down to the anal region deep black, the flanks and nuder tail-coverts light rufescent brown mottled with ashy. In immature males the middle of the abdomen is cinereous mixed with whitish, the feathers of the breast show narrow, greyish edges, and the greater upper wing-coverts are dusky tipped with cinnamonaceous (instead of being uniform chestnut-rufous).

The female had not been properly described until Dr. J. A. Allen received the type of *C. rusbyi*. His description agrees minutely with the female sent by Mr. Hoffmanns, and three others obtained by Natterer near Borba.

C. melanogaster, by far the finest species of the genus, is only known from the Rio Madeira and its tributaries (Rio Beni, R. Machados), and from the left bank of the Tapajóz (Itaitúba, Villa Braga). The original locality "Cuyaba" requires confirmation.

264. *Conopophaga aurita* (Gm.).

Turdus auritus Gmelin, *Syst. Nat.* I. ii. p. 827 (1783).—ex D'Aubenton, Pl. enl. 822: Cayenne).

No. 751. ♂ imm., Allianca, 6. xi. 1907. "Iris brown, feet greyish black, bill black."—Wing 69; tail 34; tars. 26; bill 13½ mm.

This bird agrees with others from Eastern Ecuador and Western Brazil (Rio Javarri) in having the middle of the belly buffy, and the sides to a large extent decidedly rufescent brown. Cf. Ménégau & Hellmayr, *Bull. Mus. Paris* xi. No. 6 (published January 1906) p. 374.

I expect that the birds from Amazonia (Eastern Ecuador, Northern Peru, and North Brazil) will prove to be separable from the typical race, but I should like to examine a better series from Cayenne before proposing a name.

265. *Corythopsis torquata anthoides* (Pach.).

[*Corythopsis torquata* Tschudi, *Arch. Naturg.* 10. i. p. 279 (1844.—Peru).]

Muscicapa anthoides Pachecan, *Arch. Mus. Paris* vii. p. 334 (1855.—Cayenne).

Corythopsis anthoides Pelzeln, *l.c.* p. 92 (Borba).

C. t. anthoides Hellmayr, *Nor. Zool.* xiv. 1907. p. 392 (Humaytha).

No. 442. ♂ ad., Calama, 13. viii. 1907.—Wing 69; tail 52; bill 14 mm.

No. 560. ♀ ad., Jamarysinbo, 17. ix. 1907.—Wing —; tail 50; bill 14 mm.

No. 934. ♂ ad., Maruins, 19. vi. 1908.—Wing $66\frac{1}{2}$; tail $53\frac{1}{2}$; bill $14\frac{3}{4}$ mm.

No. 921. (♀) ad., Maruins, 19. vi. 1908.—Wing 64; tail 50; bill 14 mm.

“Iris brown or greyish brown, feet grey, bill black, lower mandible yellowish grey or flesh-colour.”

All the specimens have the top of the head warm brown like the back, **not** slate-grey. Cf. Berlepsch & Hellmayr, *Journ. f. Ornith.* 1905. p. 17.

According to Mr. Hoffmanns, this bird frequents thickets in the primeval forest and keeps near the ground.

266. *Liosceles thoracicus thoracicus* (Sch.).

Pteroptochus thoracicus Schater, *Proc. Zool. Soc. Lond.*, Nov. 1864. p. 609. pl. xxxviii. (1865.—“Salto do Girao, on the left bank of the Rio Madeira”); Pelzeln, *Zur Orn. Bras.* i. 1867. p. 46 (Salto do Girao, Borba).

No. 774. ♂ ad., Allianca, 9. xi. 1907.—Wing 73; tail 80; tars. 26; bill 17 mm.

No. 214. ♂ imm., Calama, 13. vii. 1907.—Wing 72; tail 78; tars. $26\frac{1}{2}$; bill $16\frac{1}{2}$ mm.

Nos. 215, 803. ♀♀ fere ad., Calama, 13. vii. 1907; Allianca, 27. xi. 1907.—Wing 73; tail 76, 81; tars. 26; bill 17 mm.

“Iris greyish brown or brown, feet brown, bill black, lower mandible yellowish grey.”

The adult male has the pileum and nape smoky grey; the back russet-brown, the mantle paler and more olive; the innermost flanks and the under tail-coverts washed with rufescent brown. In immature birds the upper parts are of a deeper, more chestnut brown, the pileum and nape tinged with brownish; the sides of breast and abdomen are more strongly suffused with rusty brown, and the feathers of the throat show more or less distinct dusky edges. Moreover, the young male (No. 214) has the rump and upper tail-coverts conspicuously barred or streaked with black, and the edges to the upper wing-coverts of a brighter, more cinnamonaceous tinge.

All of the specimens have the foreneck extensively sulphur-yellow with a number of dull orange-red spots. The rectrices are blackish, edged with dull rufous brown edges along the basal half of the outer web. The upper mandible is black, the lower one, with the exception of the tomiae, horny white.

L. t. thoracicus appears to inhabit both banks of the Rio Madeira. Natterer met with it at Salto do Girao, on the left side, as well as at Borba, on the right bank, where Mr. Hoffmanns also obtained his examples. No other specimens are on record. A nearly allied form, *L. thoracicus erithacus* Sch.,* however, occurs in Eastern Ecuador, where it was discovered by the late C. Buckley. It merely differs by its rather stronger bill, and by lacking the sulphur-yellow tinge on the foreneck, the latter being spotted with dull orange-red on a **pure white** ground.

* *Liosceles erithacus* Schater, *Cat. Birds Brit. Mus.* xv. p. 315 (1890.—Sarayaçu, Eastern Ecuador).

267. *Threnetes leucurus* (Linn.).

Trochilus leucurus Linnaeus, *Syst. Nat.* xii. 1. p. 190 (1766.—based on Edwards, *Glean. Nat. Hist.* p. 99, pl. 256. fig. sup. : Surinam).

Threnetes leucurus Hellmayr, *Nor. Zool.* xiv. p. 392 (Humaytha, Paraiso).

No. 9. ♂ vix ad., Calama, 9. vi. 1907.—Wing 63 ; tail 37 ; bill 28 mm.

Nos. 866, 879, 880. ♂♂ ad., Marmellos, 25, 29. xii. 1907.—Wing 61—62 ; tail 35—36 ; bill 30 mm.

No. 61. ♀ imm., Calama, 17. vi. 1907.—Wing 56 ; tail 33 mm.

Nos. 842, 860. ♀♀ ad., Marmellos, 21, 24. xii. 1907.—Wing 55, 56 ; tail 32, 32½ ; bill 30 mm.

"Iris black, feet greyish pink, bill black, lower mandible greyish with dusky tip."

The light portions of the outer tail-feathers are **pure white** as in topotypical Surinam examples, from which I am unable to separate the Madeira series. *T. leucurus*, besides occurring in French, Dutch, and British Guiana, is also widely distributed in Amazonia. Mr. Hoffmanns obtained it at various places on the Rio Madeira, as well as near Tefé, Rio Solimões (cf. *Nor. Zool.* xiv. p. 74).

268. *Glaucis hirsuta* (Gm.).

Trochilus hirsutus Gmelin, *Syst. Nat.* 1. i. p. 490 (1788.—ex Brisson : ex Maregrave : "Brasilia," sc. Eastern Brazil).

Glaucis hirsuta Hellmayr, *l.c.* p. 392 (Humaytha, Borba).

Nos. 758, 29. ♂ ad., juv., Calama, 12. vi., 10. ix. 1907.—♂ ad. : wing 60 ; tail 39 mm.

Nos. 649, 651, 697. ♂♂ ad., S. Isabel, 9, 15, 16. x. 1907.—Wing 63 ; tail 41—43 mm.

No. 651. ♀ ad., S. Isabel, 9. x. 1907.

Nos. 840, 841, 861, 862, 864, 865, 867, 869. ♂♂ ad. et imm., Marmellos, 21, 25, 26. xii. 1907.

Nos. 839, 861, 876. ♀♀ ad., ♀ juv., Marmellos, 21, 24, 27. xii. 1907.

The females are dull cinnamonaceous below, with the middle of the belly white, while the males are much darker and strongly suffused with grey.

269. *Phoebastria ochraceiventris* Hellm.

Phoebastria affinis ochraceiventris Hellmayr, *Bull. B. O. C.* xix. p. 54 (1907.—Humaytha).

P. ochraceiventris Hellmayr, *Nor. Zool.* xiv. p. 393 (Humaytha, Tefé).

No. 7. ♀ ad., Calama, 9. vi. 1907. "Iris blackish, feet greyish brown, bill black, below red."—Wing 59 ; rectr. med. 71, submed. 40, ext. 28 ; bill 36 mm.

Compared with the type, this bird is smaller with a shorter bill, and the colour of the foreneck and chest duller, brownish buff, the abdomen and under tail-coverts alone being bright ochraceous buff. The edges to the outer rectrices are, however, clear cinnamon as in the Tefé and Humaytha specimens.

The species ranges from the Madeira Valley to Tefé, on the Solimões.

270. *Phoebastria hispidus hispidus* (Gould).

Trochilus (?) hispidus Gould, *Proc. Zool. Soc. Lond.* xiv. 1846. p. 90 (1846.—"Peru ?" errore ! the type was obtained in Bolivia by Bridges ; cf. *Monogr. Trochil.* i. pl. 22).

Phoebastria hispidus Hellmayr, *Nor. Zool.* xiv. p. 394 (Humaytha, Borba).

Nos. 434, 628. ♂ ad., ♂ imm., Calama, 20. viii. 1907 ; S. Isabel, Rio Preto, 5. x. 1907.—Wing 59 : tail 64, 61 : bill 32, 33 mm.

Nos. 191, 242, 663, 664, 673. ♀♀ ad., Calama, 8, 19. vii. 1907; S. Isabel, 10, 11. x. 1907.—Wing 52—55; tail 60—64; bill 30—32 mm.

Nos. 767, 807. ♀♀ ad., Allianca, 8, 30. xi. 1907.—Wing 54, 53; bill 30 mm.

No. 852. ♂ ad., Marmellos, 23. xii. 1907.—Wing 57; tail 64; bill 32 mm.

Nos. 825, 831, 843, 852, 878. ♀♀ ad. et imm., Marmellos, 18, 19, 21, 23, 28. xii. 1907.—Wing 52—53; tail 57—61; bill 30—31 mm.

“Iris and feet black, bill black, below yellowish green.”

The birds from the Rio Madeira are perfectly similar to topotypical specimens from Bolivia (Salinas, Beni; Guarayos) and others from Peru (Samiria, Sarayaçu). The edges to the upper tail-coverts and feathers of the rump are hoary or whitish in the adults, while they are decidedly buff in the northern race, *P. hispidus villosus* Lawr.,* occurring in Bogotá collections, on the Upper Orinoco (Nericagna), etc.

271. *Phoethornis philippii* (Bourc.).

Trochilus philippii Bourcier, *Ann. Soc. Agric. Lyon* x. p. 623 (1847.—“Bolivia”).

Phoethornis philippii Hellmayr, *Nor. Zool.* xiv. p. 394 (Humaytha, Borba).

No. 237. ♂ ad., Calama, 18. vii. 1907.—Wing 62; med. rectr. 64, submed. 38, ext. 30; bill 32 mm.

No. 235. ♀ imm., Calama, 18. vii. 1907.—Wing 58; med. rectr. 66, submed. 36, ext. 25; bill 33 mm.

No. 542. Adult, Jamarysinho, 13. ix. 1907.—Wing 64; med. rectr. 67, submed. 38, ext. 28; bill 35½ mm.

No. 768. ♀ ad., Allianca, 8. xi. 1907.—Wing 58; med. rectr. 64; bill 32 mm.

Nos. (not numbered). ♂ ad., ♂ vix ad., Calama, 10, 12. ix. 1908.—Wing 63, 59; med. rectr. 64, 60, submed. 38, 36, ext. 29, 25; bill 33, 31 mm.

“Iris brown or black, feet black, bill black, lower mandible (except tip) red or yellowish red.”

The immature female (No. 235) has the bill slightly decurved. To the range given in *Nor. Zool.* xiv. p. 395 the above localities are to be added, as also Cachoeira, Rio Purús, whence Miss Snethlage† has lately recorded a single specimen. *P. philippii*, until recently a very rare bird in collections, appears to be widely distributed in Brazilian Amazonia, from the Solimões to the Madeira Valley.

272. *Phoethornis ruber ruber* (Linn.).

Trochilus ruber Linnaeus, *Syst. Nat.* x. p. 121 (1758.—ex Edwards, *Ornith.* i. p. 32, pl. 32, fig. sup.: Surinam); cf. *Nor. Zool.* xiii. p. 375.

P. ruber ruber Hellmayr, *Nor. Zool.* xiv. p. 395 (Humaytha).

Phaetornis Davidianus Pelzel, *l.c.* p. 27 (Borba).

No. 8. Juv., Calama, 9. vi. 1907.—Wing 32; tail 32; bill 20 mm.

No. 183. ♀, Calama, 7. vii. 1907.—Wing 33; tail 32; bill 21 mm.

No. 926. ♂ juv., Maruim, 12. vi. 1908.—Wing 33; tail 34; bill 22 mm.

“Iris black, feet yellow, bill black, lower mandible yellowish green, tip (8 to 9 mm.) black.”

The three specimens are in the “*eremita*” plumage, with pointed rectrices

* *Phaetornis villosus* Lawrence, *Ann. Lye. Nat. Hist. N. York* vi. p. 258 (1858.—Ecuador; Santa Fé de Bogotá).

† *Journ. f. Orn.* 1908, p. 18.

with long, cinnamon-rufous tips. They agree perfectly with Cayenne skins in corresponding plumage.

273. *Campylopterus obscurus aequatorialis* Gould.

[*Campylopterus obscurus* Gould, *Proc. Zool. Soc. Lond.* xvi. 1818. p. 13 (1848.—"River Amazon," sc. Pará).]

C. aequatorialis Gould, *Introd. Trochilid.* p. 51 (1861.—"neighbourhood of Quito").

Nos. 38, 135. ♂♂ ad., Calama, 13, 30. vi. 1907.—Wing 76, 74; tail 50; bill $26\frac{1}{2}$, $27\frac{1}{3}$ mm.

Nos. 623, 667. ♂ ad., ♂ imm., S. Isabel, 4, 10. x. 1907.—Wing 77, 73; tail 49; bill 26, 25 mm.

No. 804. ♂ ad., Allianca, 27. xi. 1907.—Wing 74; tail $50\frac{1}{2}$; bill $24\frac{1}{2}$ mm.

No. 881. ♂ imm., Marmellos, 29. xii. 1907.—Wing 77; tail 50; bill 27 mm.

No. 979. ♂ ad., Marnins, 9. vii. 1908.—Wing 75; tail 51; bill $27\frac{1}{3}$ mm.

"Iris, feet, and bill black, base of lower mandible red."

The Marmellos bird and the immature male from S. Isabel are practically identical with Peruvian and Napo examples. The others have the apical spots to the outer rectrices more greyish, thereby approaching the eastern *C. o. obscurus* (cf. *Nor. Zool.* xiii. p. 375), but the pale tips are more extended, especially on the penultimate and third pair, than in the latter race.

C. o. aequatorialis is new to the Brazilian fauna. Its occurrence on the banks of the Rio Madeira is not surprising, for it was for a long time known as an inhabitant of North-Eastern Bolivia. The Tring Museum possesses a series obtained by Mr. Maxwell Stuart at Gnanay and San Augustin, on the Upper Beni, and, in the British Museum, there is a couple from Mapiri, Buckley coll.

[274. *Eupetomena macroura macroura* (Gm.).

Cf. Hellmayr, *Nor. Zool.* xiv. p. 395 (Humaytha).

Humaytha (Hoffmanns).]

[275. *Florisuga mellivora* (Linn.).

Cf. Pelzeln, *l.c.* p. 30 (Borba); Hellmayr, *l.c.* p. 395 (Humaytha, Borba).

Humaytha, left bank (Hoffmanns); Borba, right bank (Natterer, Hoffmanns).]

[276. *Agyrtria fimbriata fimbriata* (Gm.).

Trochilus fimbriatus Gmelin, *Syst. Nat.* 1. i. p. 493 (1788.—ex Brisson, *Orn.* iii. p. 706. No. 7. pl. 36. fig. 2: Cayenne); cf. Berlepsch, *Nor. Zool.* xv. 1908. p. 266.

Agyrtria albiventris albiventris (Less.); Hellmayr, *l.c.* p. 395 (Borba).

Right bank: Borba (Hoffmanns).

This is the most southerly record for the species. Farther south, on the banks of the Rio Guaporé (Engenho do Gama), Natterer met with *A. fimbriata nigricauda* (Ell.). See *Nor. Zool.* xv. 1908. pp. 74-5.]

[277. *Hylocharis sapphirina sapphirina* (Gm.).

Cf. Hellmayr, *Nor. Zool.* xiv. p. 395 (Borba).]

Right bank: Borba (Hoffmanns).]

278. *Chlorestes notatus* (Reich).

Trochilus notatus Reich, *Magazin des Tierreichs* (Erlangen) 1. iii. p. 129 (1795.—based on Richard & Bernard, *Cat. Ois. env. de Cayenne par M. le Blond* in *Act. Soc. Hist. Nat. Paris* 1. i. 1792. p. 117. No. 48 : Cayenne).

Hylocharis coerulesa Pelzeln, *l.c.* p. 33 (Borba).

Chlorestes carruleus Hellmayr, *l.c.* p. 396 (Humaytha).

Nos. 686, 701. ♂♂ ad., S. Isabel, 16. x., 12. x. 1907.—Wing 49—50; tail 31; bill 16, 17 mm.

Nos. 665, 666, 672, 699, 702. ♂♂ juv., ♀♀, S. Isabel, 10, 11, 15, 16. x. 1907.

Nos. 817, 818, 845, 868. ♂♂ ad., Marmellos, 16, 17, 21, 25. xii. 1907.—Wing 49—50; tail 29—30 mm.

Nos. 815, 823. ♂ juv., ♀, Marmellos, 16, 18. xii. 1908.

"Iris and feet black, bill black, below red or greyish red."

279. *Thalurania balzani* E. Sim.

Thalurania balzani E. Simon, *Nov. Zool.* iii. p. 259 (1896.—"Yungas de Bolívie"); Hellmayr, *l.c.* xiv. 1907. p. 396 (Borba); Snethlage, *Journ. f. Ornith.* 1908. p. 514 (Campinho, Villa Braga : left bank of Tapajóz).

T. furcata furcataoides (nec Gould) Hellmayr, *Nov. Zool.* xiv. 1907. p. 24 (Itaitúba, left bank of Tapajóz).

No. 107. ♂ perad., Calama, 25. vi. 1907.—Wing 52; tail 32; bill 19½ mm.

Nos. 131, 138, 459, 471, 472. ♂♂ fere ad. et imm., Calama, 29, 30. vi., 26, 27. viii. 1907.—Wing 51—53; tail 31—32; bill 18—20 mm.

Nos. 650, 674, 698. ♂ vix ad., ♂♂ imm., S. Isabel, Rio Preto, 9, 11, 15. x. 1907.—Wing 50—53; tail 31—32; bill 20 mm.

No. 450. ♂ juv., Calama, 26. viii. 1907.—Wing 54; tail 31; bill 16½ mm.

No. 931. ♂ ad., Maruins, R. Machados, 14. vi. 1908.—Wing 53; tail 32; bill 20½ mm.

Nos. 15, 692. ♀♀ ad., Calama, S. Isabel, 10. vi., 13. x. 1907.—Wing 49, 51; tail 28; bill 19, 20 mm.

Nos. 916, 957. ♀♀ ad., Maruins, 9, 26. vi. 1908.—Wing 49, 50; tail 29, 30; bill 20 mm.

No. 808. ♀ ad., Allianca, 30. xi. 1907.—Wing 49; tail 28½; bill 19 mm.

"Iris, bill, and feet black."

Identical with specimens from Eastern Bolivia (Beni River). The males have the under tail-coverts pure white, and in fully adult birds the interscapular region when viewed from in front looks very dark, almost blackish. The form found on the left bank of the Rio Tapajóz is likewise *T. balzani*. The females taken at Itaitúba by Mr. Hoffmanns were erroneously determined as *T. f. furcataoides*, but Miss Snethlage has lately obtained, in the same region, an adult male. *T. simoni* Hellm., from Tefé, Rio Solimões, while agreeing with *T. balzani* in the small size, in the dark coloration of the interscapulum, etc., differs at a glance by having the under tail-coverts steel-black with white edges. Cf. *Nov. Zool.* xiv. 1907. pp. 77—8.

The range of *T. balzani* is as follows :—

Eastern Bolivia : Salinas, Reyes (Maxwell Stuart; Tring Museum). Central Brazil, Amazonia : Calama, S. Isabel, Borba, Allianca, Rio Madeira, Maruins, Rio Machados (Hoffmanns); Itaitúba (Hoffmanns), Campinho, Villa Braga (Snethlage), left bank of Rio Tapajóz.

[280. *Anthracothonax nigricollis nigricollis* (Vieill.).

Cf. Hellmayr, *Nor. Zool.* xiv. p. 396 (Humaytha).

Humaytha (Hoffmanns).]

281. *Psilomycter theresiae theresiae* (Da Silva).

Ornismya theresiae Da Silva, *Minerva Brazil*, 1^o Nov. 1843, p. 2 (1843.—Pará); cf. H. & R. Ihering, *As Aves do Brazil* p. 426.

Psilomycter t. theresiae Hellmayr, *Nor. Zool.* xiv. p. 396 (Humaytha, Borba).

Nos. 675, 700. ♀ imm., imm. (not sexed), S. Isabel, Rio Preto, 11, 25. x. 1907.—Wing $53\frac{1}{2}$; tail 31, $32\frac{1}{2}$; bill 19, 20 mm.

“Iris and feet black, bill black, base of lower mandible red.”

The birds from the Rio Madeira agree with the typical race described from Pará.

P. t. theresiae (Da Silva) inhabits Cayenne, Surinam, British Guiana, the whole of Lower Amazonia from Pará west to Manáos (Barro do Rio Negro), and the banks of the Madeira and Tapajós Rivers. Natterer's series from Manáos agrees in every respect with Guianan examples.

P. t. leucorrhous (Scl. & Salv.)* replaces it on the upper Rio Negro (Cobati [Wallace], Marabitanas [Natterer]), and in Eastern Pern (Xeberos, etc.).

282. *Heliothrix auritus auriculatus* (Nordm.).

[*Trochilus auritus* Gmelin, *Syst. Nat.* 1, i p. 493 (1783.—ex Brisson : Cayenne).]

T. auriculatus Nordmann in Erman's *Reise, Naturhist. Atlas* p. 5. pl. ii. figs. 1, 2 = ♂ ♀ (1835.—Rio de Janeiro; cf. *op. cit.* p. v.).

No. 132. ♂ vix ad., Calama, 29. vii. 1907. “Iris, feet, and bill black.”—Wing 67; rectr. med. 48, ext. 35; bill $18\frac{1}{2}$ mm.

Agrees with South Brazilian skins except that the bill is very slightly longer. The median portion of the throat and foreneck is white, while a small chin-spot and a broad stripe along each side of the throat are glittering golden green. The bird still retains the narrow pointed tail-feathers of the juvenile plumage, with a distinct bluish black bar near the base of the three outer pairs, but in other respects it is adult.

New to the fauna of the Rio Madeira. Kalinowski had obtained it in the Chanchamayo district of Central Pern.†

[283. *Popelairia langsdorffi melanosternon* (Gould) [?].

[*Trochilus Langsdorffi* (sic) Vieillot, *Tabl. enc. méth.* ii. p. 574 (1822.—“Brésil”; we fix *Rio de Janeiro* as type locality).]

Gouldia melanosternon Gould, *Ann. Mag. Nat. Hist.* (4) i. p. 328 (1863.—Peru).

G. Langsdorffi Pelzeln, *l.c.* p. 32 (Ribeirão).

Rio Madeira : Ribeirão (Natterer).

Although the specimen does not any longer exist in the Vienna Museum, the birds of the Madeira district are more probably referable to the Upper Amazonian race than to the typical form, which appears to be restricted to East Brazil (Bahia to S. Paulo).]

* *Polytmus leucorrhous* Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1867, p. 584 (1867.—Cobati, Rio Negro).

† Berlepsch & Stolzmann, *Proc. Zool. Soc. Lond.* 1902, p. 28.

[284. *Chaetura cinereiventris sclateri* Pelz.

[*Chaetura cinereiventris* Sclater, *Cat. Coll. Amer. Birds* p. 233 (1862.—ex Wied and Burmeister : Bahia).]

C. Sclateri Pelzeln, *Zur Orn. Bras.* i. pp. 16, 56 (1867.—Borba).

Borba (Natterer). Widely distributed in Upper Amazonia, but not recorded from any locality east of the Madeira Valley. Cf. my account in *Verhandl. Ornith. Ges. Bayern* viii. 1908. p. 157.]

[285. *Chaetura spinicauda spinicauda* (Temm).

Cypselus spinicauda Temminck, *Tabl. méth. Pl. col.* p. 57 (1839.—based on D'Arbenton, Pl. enl. 726. fig. 1 : Cayenne).

Chaetura cinereiventris (nee Sclater) Pelzeln, *l.c.* p. 16 (part. : Borba, Pará).

Right bank : Borba (Natterer).

This species is chiefly found in the Guianas, but in Eastern Brazil it ranges as far south as Bahia. Cf. Hellmayr, *Verhandl. Ornith. Gesellschaft. Bayern* viii. 1908. pp. 158–60.]

[286. *Claudia squamata* (Cass.).

Cypselus squamatus Cassin, *Proc. Acad. N. Sci. Philad.* vi. p. 369 (1853.—British Guiana) ; Pelzeln, *l.c.* p. 16 (Borba).

Right bank : Borba (Natterer).]

287. *Chordeiles rupestris* (Spix).

Caprimulgus rupestris Spix, *Av. Bras.* ii. p. 2. pl. ii. (1825.—“in insulis petrosis fl. Nigri”); Pelzeln, *l.c.* p. 14 (Rio Guaporé, das Pedras, Rio Mamoré, etc.).

Nos. 544, 598, —. ♂♂ ad., Jamarysinho, 26, 27. ix. 1907.—Wing 160—172 ; tail 88—99 ; bill 7—8 mm.

Nos. 595, 596, 599. ♀♀ ad., Jamarysinho, 26, 27. ix. 1907.—Wing 155—166 ; tail 87, 89, 100 ; bill 7—7½ mm.

“Iris brown, feet and bill black.”

The males agree perfectly with the typical examples in the Munich Museum. The females differ in the decidedly more rufescent buff ground-colour of the upper parts, and by having the white portion of the outer rectrices more or less blotched and banded with black. Peruvian skins are somewhat darker above, but the difference is insignificant.

According to the observations of Mr. Hoffmanns, these birds breed in large numbers on the sandy beach of the river (“Pleya”). Two clutches consisting each of two eggs were taken on September 27, 1907. They are thickly marbled and spotted with pale brown and lavender-grey on a pale buff or greyish white ground, and measure 26 × 20, 27 × 20, 28 × 19½ mm. The egg is well figured in *Cat. Eggs Brit. Mus.* iii. pl. i. fig. 5.

288. *Nyctiprogne leucopyga* (Spix).

Caprimulgus leucopygus Spix, *Av. Bras.* ii. p. 3. pl. iii. fig. 2 (1825.—“ad litora sylvestria fl. Amazonum”).

Lurocalis leucopyga Pelzeln, *l.c.* p. 14 (Cidade de Mattogrosso).

No. 113. ♂ ad., Calama, 26. vi. 1907. “Iris dark brown, feet dusky grey, bill black.”—Wing 135 ; tail 95 ; bill 5 mm.

A perfectly adult male with the upper parts nearly uniform blackish, the

rufescent buff markings being reduced to minute dots and some obsolete wavy lines. Natterer's female from Mattogrosso is rather large (wing 150; tail 105 mm.), but in coloration it does not differ from Venezuelan and Rio Negro examples.

289. *Podager nacunda* (Vieill.).

Caprimulgus nacunda Vieillot, *Nour. Dict.* x. p. 240 (1817.—ex Azara : Paraguay).

Podager nacunda Pelzeln, *l.c.* p. 15 (Borba).

No. 887. ♀ ad., Calama, 18. iv. 1908. "Iris dark brown, feet grey, bill greyish black."

290. *Lurocalis semitorquatus nattereri* (Temm.).

[*Caprimulgus semitorquatus* Gmelin, *Syst. Nat.* 1. ii. p. 1031 (1789.—ex D'Aubenton, Pl. enl. 734 : Cayenne).]

C. nattereri Temminck, *Pl. col.* livr. 18. pl. 107 (1822.—"Brésil," coll. Natterer—we fix Ypanema, S. Paulo, as type locality).

No. 81. ♀ ad., Calama, 20. vi. 1907. "Iris black, feet yellowish grey, bill black."

This form is much larger than *L. s. semitorquatus*, from North-Eastern South America, but does not differ in coloration. It ranges from Pará and Manáos southward to S. Paulo and Paraná (Curitiba), while typical *L. s. semitorquatus* dwells in the Guianas, in the island of Trinidad, and on the upper Rio Negro (Rio Içanna).

The subjoined table of measurements shows the differences in size :—

(a) *L. s. semitorquatus* (Gm.).

	Wing.	Tail.
One adult, Cayenne	177	92 mm.
One ♂ ad., Chaguanas, Trinidad	174	84 "
Two ♀♀ ad., Chaguanas, Trinidad	178	77, 83 "
One ♀ ad., Rio Içanna, Natterer coll., Vienna Mus.	178	82 "

(b) *L. s. nattereri* (Temm.).

	Wing.	Tail.
One adult male from S. Paulo (Ypanema)	202	95 mm.
Five adult females from S. Paulo	195—215	88—100 mm.
Three adults from Rio de Janeiro	198—215	89—95 "
One adult from Bahia	196	84 "
One female from Calama, Rio Madeira	187	93 "
One adult male from Pará	193	87 "
One female from Pará	183	82 "
One adult female from Manáos	202	91 "

N.B.—The Manáos specimen is fully as large as others from S. Paulo, while the birds from Bahia, Calama, and Pará average rather smaller.

[291. *Hydropsalis torquata* (Gm.).

Cf. Hellmayr, *Nor. Zool.* xiv. p. 396 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Natterer obtained this South Brazilian species, according to Von Pelzeln,*

* *Orn. Bras.* i. p. 11.

near Santarem, a locality still farther to the north than Humaytha. On the banks of the Rio Guaporé occurs the very distinct *H. furcifer* (Vieill.) (*pallescens* Pelz.).]

[292. **Hydropsalis climacocercus** (Tsch.).

Caprimulgus climacocercus Tschudi, *Arch. Naturg.* 10. i. p. 269 (1844.—Peru).

Hydropsalis trifurcata Pelzelin, *l.c.* p. 11 (Bananeira, Borba).

Rio Madeira: Bananeira, Borba (Natterer).

Widely distributed in Amazonia.]

293. **Nyctidromus albicollis albicollis** (Gm.).

Caprimulgus albicollis Gmelin, *Syst. Nat.* 1. ii. p. 1030 (1789.—ex Latham: Cayenne).

Nyctidromus guianensis Pelzelin, *l.c.* p. 13 (Borba).

Nos. 300, 463. ♂♂ ad., Calama, 30. vii., 26. viii. 1907.—Wing 152, 150; tail 150, 147 mm.

Nos. 375, 733. ♀♀ ad., Calama, 11. viii., 29. x. 1907.—Wing 150—152; tail 150 mm.

No. 489. ♀ imm., Calama, 30. viii. 1907.—Wing 141; tail 126 mm.

“Iris dark brown, feet grey, bill dark grey or black.”

Agreeing with specimens from Cayenne, Venezuela, and Trinidad.

Mr. Hoffmanns reports that this bird lays a single egg on the ground amidst dry leaves and grasses. One egg, taken at Calama, October 14, 1907, is pinkish buff, indistinctly spotted with pale reddish brown and underlying lavender-grey. Another egg is much brighter pink, with the reddish spots more numerous, but with very little lavender-grey. They measure 29.75 × 20.50 and 30 × 21.50 mm.

294. **Caprimulgus ocellatus** Tsch.

Caprimulgus ocellatus Tschudi, *Arch. Naturg.* 10. i. p. 268 (1844.—Peru).

No. 575. ♀, Jamarysinho, 20. ix. 1907. “Iris black, feet greyish brown, bill black.”—Wing 120; tail 115; bill 9½ mm.

Compared with several skins from Bahia and Ypanema (S. Paulo) this bird is of a brighter rufous brown, but the markings are the same. Topotypical Peruvian specimens are not available for examination.

C. rosenbergi Hart,* from Western Colombia and N.W. Ecuador, is very nearly allied to *C. ocellatus*, and, like it, has no white cross-bar on the remiges. However, the general colour is blackish, the white apical margin to the rectrices is much narrower, there are no cinnamonaceous marginal spots on the outer web of the primaries, while, on the other hand, each of the innermost greater wing-coverts has a large, rounded white apical spot.

[295. **Caprimulgus maculicaudus** (Lawr.).

Cf. Hellmayr, *Nor. Zool.* xiv. p. 397 (Humaytha).

Left bank: Humaytha (Hoffmanns).

A single adult female was taken in September 1906. In the paper quoted above I have given some notes about the distribution of the species.]

* *Bull. Brit. Orn. Cl.* v. p. x. (1895.—Rio Dagua, W. Colombia).

[296. *Caprimulgus parvulus* Gould.

Caprimulgus parvulus Gould, *Proc. Zool. Soc. Lond.* v. 1837. p. 22 (1837.—no locality, Darwin coll.; the type was from the "Paraná, near Santa Fé"; cf. *Voyage of the Beagle, Birds*, p. 37).
Stenopsis parvula Pelzeln, *l.c.* p. 12 (Borba).

Right bank : Borba (Natterer).

Natterer's female, August 3, 1830, agrees in every respect with typical examples from near Ocampo, Paraná, Argentine.

C. parvulus has a wide range in South America. Natterer obtained it at numerous localities in Brazil, and H. H. Smith near Chapada, Mattogrosso. Count Berlepsch possesses an adult male, picked out from a large lot of Bahia trade skins, and a female taken by Mr. W. A. Schulz at Paricatúba, Lower Amazons, etc., etc.]

297. *Caprimulgus nigrescens* Cab.

Caprimulgus nigrescens Cabanis in Schomburgk, *Reisen Brit. Guiana* iii. p. 710 (1848.—British Guiana).
Stenopsis nigrescens Pelzeln, *l.c.* p. 12 (Borba).

No. 778. ♀ ad., Alliança, 12. xi. 1907. "Iris brown, feet and bill black."—Wing 142; tail 100; bill 11 mm.

This bird, as well as others from the Rio Madeira, secured by Natterer, agree perfectly with a series from British Guiana and Venezuela (Caura).

298. *Chloronerpes flavigula* (Bodd.).

Picus flavigula Boddaert, *Tabl. Pl. enl.* p. 49 (1783.—ex D'Aubenton, *Pl. enl.* 781 : Cayenne).
Chloronerpes flavigula Pelzeln, *l.c.* p. 244 (Borba).

No. 433. ♂ imm., Calama, 20. viii. 1907.—Wing 120; tail 74; bill 23 mm.

No. 1048. ♀ ad., Marnins, 22. vii. 1908.—Wing 124; tail 73; bill 20½ mm.

"Iris brown, feet greenish grey, bill black, below grey."

In specimens from the Rio Madeira the whitish spots on the foreneck and chest appear generally more bar-like (less heart-shaped) than in Cayenne and Venezuelan (Caura) examples, but this is not quite constant.

299. *Chloronerpes chrysochloros paraensis* Suerthl.

[*Picus chrysochloros* Vieillot, *Nouv. Dict.* xxvi. p. 98 (1818.—ex Azara : Paraguay).]
Chloronerpes paraensis Suerthlaga, *Orn. Mamber.* xv. p. 163 (1907.—Murucutú, near Pará).

No. — (♂) ad., Calama (no date).—Wing 139; tail 80; bill 25½ mm.

No. 330. ♀ ad., Calama, 3. viii. 1907.—Wing 137; tail 75; bill 25 mm.

"Iris dingy yellow, feet greyish green, bill black."

The male has the throat paler yellow than the type from Pará, while the female, in this respect, agrees with the latter.

C. c. paraensis is closely allied to *C. c. capistratus* (Mall.),* from British Guiana and the Rio Negro district, but differs by having the throat uniform yellow (not banded with olive-green), the ground-colour of the under parts more yellowish, the edges to the median rectrices broader and more intensely olive-green, and by lacking the crimson mystacial stripe in the male sex. It is thus somewhat intermediate between *C. c. capistratus* and the southern *C. c. chrysochloros*. The latter, while agreeing with *C. c. paraensis* in the uniform throat, has the under parts

* *Chrysopicus capistratus* Matherbe (ex Natterer MS.), *Monogr. Picid.* ii. p. 110¹ pl. 8¹ figs. 4, 5 (1862.—"Brésil," Natterer coll., sc. Rio Negro).

much deeper yellow, the back darker and less golden, the median rectrices less distinctly edged with greenish, etc. Moreover, wings, tail, and bill are much shorter, and the adult male possesses a dark crimson mystacial stripe.

The characters and ranges of the four geographic races of the group are as follows :—

(a) *C. chrysochloros chrysochloros* (Vieill.).

Type locality : Paraguay.

Hab. Paraguay (Azara): Lambaré (Rohde). Argentine: Fortin Donovan, Rio Pileomayo (Kerr); Oran, Salta (Gerling—Brit. Mus.); Ledesma, Jujuy (Dinelli—Munich Mus.). S.E. Bolivia: San Francisco, Chaco (Borelli), Piedra Blanca (Smith). Brazil, Western Mattogrosso: Cornmbá (Borelli, Smith), Miranda (Bach—Mus. Brit.), Cuyabá (Natterer).

Adult. Ground-colour of under parts deep ochreous golden yellow, throat uniform deep yellow. Male with upper part of the head and broad mystacial stripe deep crimson.

	Wing.	Tail.	Bill.
Five adult males	115—125	75—87	21½—24 mm.
Three adult females	117—126	77—83	21—23 „

(b) *C. chrysochloros braziliensis* (Swains.).

Picus Braziliensis Swainson, *Zoolog. Illustr.* i. pl. 20 (1820-21.—“ province of Bahia”).

Type locality : Bahia, Eastern Brazil.

Hab. Eastern Brazil: Bahia (Swainson; trade skins in Mus. H. v. Berlepsch); Piahy: Parnaguá (Reiser).

Adult. Exactly like *C. c. chrysochloros*, but with longer, stouter bill, and upper parts duller olive.

	Wing.	Tail.	Bill.
Two adult males from Bahia	124	80	25 mm.
Three adult males from Piahy	118, 121	76	24, 25 mm.
Two adult females from Bahia	122, 125	75, 79	24, 24½ „
One female from Piahy	122	77½	24½ „

(c) *C. chrysochloros paracensis* Sneath.

Type locality : Murrentú, near Pará.

Hab. North Brazil: Murrentú, Pará (Hagmann); Calama, right bank of lower R. Madeira (Hoffmanns).

Adult. Differs from (a) and (b) by its larger size, brighter golden olive back, pale yellow ground-colour of the under parts, etc. Male with pileum red, but mystacial stripe dark olive (not crimson).

	Wing.	Tail.	Bill.
One adult male from Pará (<i>type</i>)	139	72	25 mm.
One adult male from Calama	139	80	25½ „
One adult female from Calama	137	75	25 „

(d) *C. chrysochloros capistratus* (Malh.).

Type locality : Rio Negro.

Hab. N.W. Brazil: Manãos, S. Isabel, Marabitanas, Rio Vaupé, Rio Negro (Natterer); Telfö, Rio Solimões (Hoffmanns). Eastern Ecuador: Sarayaçu (Buckley). British Guiana: R. Rupununi (Whitely).

Adult. Under parts from chin to tail-coverts regularly barred with dark olive-green and yellowish white. Male with pileum and broad mystacial stripe crimson. Female with upper part of the head bright golden olive.

	Wing.	Tail.	Bill.
Four adult males (including the <i>type</i>)	136—140	76—83	26—30 mm.
Six adult females	133—140	75—82	25—28 „

300. *Melanerpes cruentatus* (Bodd.).

Picus cruentatus Boddaert, *Tabl. Pl. enl.* p. 43 (1783.—ex D'Aubenton, *Pl. enl.* 694. fig. 2 : Cayenne).

Melanerpes cruentatus Hellmayr, *Nov. Zool.* xiv. p. 397 (Humaytha).

M. hirundinaceus Pelzeln, *l.c.* p. 248 (Salto Girao, Borba).

No. 769. ♂ ad., Allianca, 9. xi. 1907. "Iris clear yellow, feet dark green, bill black."—Wing 113 ; tail 61 ; bill 24 mm.

Typical with broad superciliaries, creamy above the eye, golden yellow in its posterior portion.

[301. *Veniliornis ruficeps ruficeps* (Spix).

Picus ruficeps Spix, *Av. Bras.* i. p. 63. pl. lvi. figs. 2 (♂), 3 (♀) (1824.—"in sylvis fluminis Amazonum").

Campius ruficeps var. *a.*, Pelzeln, *l.c.* p. 245 (part. : Borba).

Right bank : Borba (Natterer).

The single adult male procured August 21, 1830, agrees in coloration with specimens from Pará and Marabitanas, upper Rio Negro. The median and greater wing-coverts have distinct, though narrow, pale yellow shaft-streaks, surrounded at the tip by a rather restricted dull red zone.

The same form occurs on the left bank of the Tapajóz, near Itaitúba,* in the Pará district, as well as in the neighbouring province of Maranhão, whence the Munich Museum has received several examples through Mr. F. Schwanda.]

302. *Veniliornis ruficeps haematostygma* (Malherbe).

Mesopicus haematostygma Malherbe (ex Natterer MS.), *Monogr. Picid.* ii. p. 72. pl. 61. fig. 2 (1862.—type = ♂ ad., Engenho do Gama, Rio Guaporé, Natterer coll. in Vienna Museum).

Campius ruficeps (var. *β*) Pelzeln, *l.c.* p. 246 (part. : Mattogrosso ; Ribeirão, Salto Theotonio, Rio Madeira).

Veniliornis ruficeps haematostygma Hellmayr, *Nov. Zool.* xiv. p. 397 (Humaytha).

Nos. 218, 228. ♂ ad., ♂ imm., Calama, 13, 15. vii. 1907.—Wing 96, 94 ; tail 60, 64 ; bill 21½, 20 mm.

No. 923. ♂ ad., Marnins, 11. vi. 1907.—Wing 91 ; tail 58 ; bill 21 mm.

Nos. 66, 1047. ♀ ♀ ad., Calama, 17. vi. 1907 ; Maruins, 22. vii. 1908.—Wing 96, 92 ; tail 58, 57 ; bill 19½, 19 mm.

"Iris reddish brown, feet blackish, bill blackish grey."

This series, as well as the specimens secured by Natterer on the upper Rio Madeira (Ribeirão, Salto Theotonio) and in Western Mattogrosso (Engenho do Gama, Villa Maria), differ from *V. ruficeps* by having the blood-red area on the upper wing-coverts much deeper and far more extended, etc. The light shaft-streaks within this red zone are either wholly absent or but indistinctly indicated. The dusky barring of the lower parts is not so dark, and the back less golden yellow.

(Cf. Abthundl. Bayer. Akad. Wissensch. II. Cl. vol. xxii. 3. 1906. pp. 609—11.

* Cf. *Nov. Zool.* xiv. 1907. p. 25.

303. *Celeus jumana jumana* (Spix).

Picus jumana Spix, *Ar. Bras.* i. p. 57, pl. xlvii. (1824.—“in sylvis flumi. Amazonum”).

Celeus jumana Pelzeln, *Lc.* p. 251 (Salto do Girao, Borba); Hellmayr, *Nor. Zool.* xiv. p. 398 (Humaytha).

Nos. — , 644. ♂♂, Calama, 1. ix. 1907; S. Isabel, 8. x. 1907.—Wing 158; tail 105, 106; bill 28, 29 mm.

No. 940. ♀ ad., Marnins, 23. vi. 1908.—Wing 164; tail 105; bill 27 mm.

“Iris red, feet plumbeous, bill light greyish.”

The inner webs of the remiges are regularly banded with blackish and pale yellow. The rump is yellow, but the upper tail-coverts are cinnamon-rufous.

C. jumana citreopygius Scl. & Salv.,* of which I have examined several skins from Eastern Ecuador, merely differs by having the inner web of the remiges not barred with blackish, and by its darker, rufous brown upper tail-coverts. It is unquestionably the western representative of *C. jumana*, replacing the latter in Eastern Peru and Ecuador (Napo).

304. *Celeus grammicus* (Malh.).

Picus grammicus Malherbe, *Mém. Soc. Roy. Liège* p. 69 (1845.—“Brésil—coll. Natterer”—viz. Rio Negro, etc.).

Celeus grammicus Pelzeln, *Lc.* p. 252 (Salto do Girao, right bank); Hellmayr, *Nor. Zool.* xiv. p. 398 (Humaytha).

Nos. 180, 782. ♀♀ ad., Calama, 7. vii.; Allianca, 13. xi. 1907.—“Iris red, feet dark green, bill yellowish green.”—Wing 126, 130; tail 80; bill 22—23 mm.

The Calama bird has the head and crest uniform cinnamon-rufous, while in the other specimen the feathers of these parts show distinct black central streaks.

305. *Cerchneipicus tinnunculus occidentalis* Harg.

[*Picus Tinnunculus* Wagler, *Isis* 1829, Heft 5. p. 516 (1829.—“Brasilia”).]

Cerchneipicus occidentalis Hargitt, *Ibis* 1889. p. 230 (1889.—Upper Ucayali, Eastern Peru—Bartlett coll.); Ihering, *Rev. Mus. Paul.* vi. 1904. p. 444 (1905.—Rio Juruaí).

Celeus tinnunculus (nec Wagler) Pelzeln, *Lc.* p. 250 (Caicara, Rio Paraguay; Eugenio do Gama, Rio Guaporé; Manaqueri, R. Solimões).

Nos. 35, 250, 301. ♂♂ ad., Calama, 13. vi., 22, 30. vii. 1907.—Wing 151—153; tail 100—104; bill 32—33 mm.

No. 87. ♀ ad., Calama, 21. vi. 1907.—Wing 153; tail 107; bill 32 mm.

“Iris red, feet blackish, bill grey.”

In addition to the above, I have before me the whole of Natterer's series: an adult male from Manaqueri, two males from Caicara, and an adult female from Eugenio do Gama. All these specimens are clearly referable to *occidentalis* as defined by Hargitt, and differ from *tinnunculus*, of Eastern Brazil, by their slenderer bill, smaller size, and by having the three outer pairs of rectrices regularly banded with rufous. The amount of black barring of the upper parts is extremely variable, although the black cross-bands are apparently never so regular nor so densely set as in *C. t. tinnunculus*. In an adult male from Manaqueri and a female from Eugenio do Gama the mantle, upper wing-coverts, and quills are broadly barred with black; an adult male from Calama (No. 301) and an immature male from Caicara have these bars somewhat narrower and less numerous on the back, while the upper wing-coverts are partly uniform cinnamon-rufous. Two other males from Calama (No. 35) and Caicara have even fewer bars on the back, and

* *C. citreopygius* Sclater & Salv., *P. Z. S. Lond.* 1867. p. 758 (1867.—Yurimaguas, E. Peru).

scarcely any on the wing-coverts. Finally, a male and female from Calama (Nos. 250, 87) have both the mantle and wing-coverts uniform cinnamon-rufous, and there are but a few scattered black marginal spots on the outer web of the remiges. These birds show a decided approach to *C. torquatus*,* of Guiana, Venezuela, and Manáos, in the colour of the mantle, but may, of course, be easily separated by having the rump, upper tail-coverts, lower breast, and belly broadly barred with black. Yet it is more than probable that both *occidentalis* and *tinnunculus* will prove to be geographic races of the northern species.

306. *Crocomorphus flavus* (P. L. S. Müll.).

Picus flavus P. L. S. Müller, *Natursyst.* Suppl. p. 91 (1776.—based on D'Aubenton, Pl. enl. 509 : Cayenne).

Crocomorphus flavus Hellmayr, *Noc. Zool.* xiv. p. 393 (Humaytha).

Celeus citrinus Pelzeln, *l.c.* p. 252 (Borba).

Nos. 584, 681, 784. ♂♂ ad., Jamarysinho, 21. ix. ; S. Isabel, 11. x. ; Allianca, 13. xi. 1907.—Wing 141—144 ; tail 88—91 ; bill 25—27½ mm.

No. 204. ♂ imm., Calama, 11. vii. 1907.—Wing 132 ; tail 88 ; bill 25½ mm.

Nos. 365, 783. ♀♀ ad., Allianca, 13. xi. ; Calama, 10. viii. 1907.—Wing 136, 137 ; tail 92, 85 ; bill 25½, 26 mm.

"Iris red, feet grey or green, bill yellowish green."

Some of these specimens have the rufous of the remiges quite as much extended as Cayenne and Venezuelan (Caura) examples, while in others the quills are blackish with hardly any rufescent tinge. They differ, however, from those of more northern localities by having very little, if any, rufous on the upper wing-coverts.

[307. *Campephilus melanoleucos* (Gm.).

Picus melanoleucos Gmelin, *Syst. Nat.* 1. i. p. 426 (1788.—ex Latham : Surinam).

Campephilus melanoleucos Pelzeln, *l.c.* p. 242 (Borba).

Borba (Natterer).

Ranging from Rio de Janeiro north to Guiana.]

308. *Campephilus trachelopyrus* (Mall.).

Megapicus trachelopyrus Malherbe, *Mém. Soc. d'Hist. Nat. Moselle* 1857, p. 1 (1857.—Péron).

No. 404. ♂ ad., Calama, 16. viii. 1907. "Iris light yellow, feet black, bill grey."—Wing 180 ; tail 123 ; bill 41 mm.

In size this bird agrees with Pará examples (cf. *Noc. Zool.* xii. pp. 300–301), while others from Peru are decidedly larger. Natterer obtained the species even farther south, at Engenho do Gama, Rio Guaporé, in Western Matto Grosso.†

309. *Picumnus aurifrons aurifrons* Pelz.

Picumnus aurifrons Pelzeln, *Zur Orn. Bras.* iii. pp. 241, 34 (1869.—Engenho do Gama, Caiçara, Rio Guaporé ; Salto do Girao, Borba, Rio Madeira) ; Hellmayr, *Noc. Zool.* xiv. p. 398 (Humaytha) ; Sneath, *Journ. f. Ornith.* 1908, p. 535 (Arumatheua, Tocantins).

Nos. 10, 585. ♂♂ ad., Calama, 9. vi. ; Jamarysinho, 21. ix. 1907.—Wing 49, 50 ; tail 23 ; bill 10 mm.

Nos. 647. ♂ juv., S. Isabel, 8. x. 1907.—Wing 49 ; tail 24 ; bill 10 mm.

* *Picus torquatus* Boddaert, *Tabl. Pl. enl.* p. 52 (1783.—ex D'Aubenton, Pl. enl. 863 : Cayenne).

† Pelzeln, *Orn. Bras.* iii. p. 242.

Nos. 312, 614. ♀♀ ad., S. Isabel, 31. vii., 3. x. 1907.—Wing 59; tail $22\frac{1}{2}$, 24; bill $10\frac{1}{2}$ mm.

“Iris brown, feet plumbeous or blackish, bill black.”

The adult males have the tips to the scapular feathers golden yellow, while in the females the top of the head is dull black, each feather with a small, rounded apical spot of white. The markings of the under parts are exactly as in Natterer's type-specimens: foreneck regularly banded with dusky, breast and abdomen with dusky longitudinal stripes. Strangely enough, a young male obtained by Natterer at Borba, August 5, 1830—in the British Museum—undoubtedly belongs to the present species and **not** to *P. borbae*, for the tips of the newly grown frontal feathers are distinctly golden yellow! Miss Snethlage has lately met with *P. a. aurifrons* at Arumathena, Tocantins River.

P. aurifrons flavifrons Hargitt,* from N.W. Brazil (Teffé) † and Eastern Peru, differs merely by having rounded spots (instead of longitudinal streaks) of dusky on the belly. A specimen from Humaytha, left bank of the Rio Madeira, is slightly intermediate in this respect, though nearer *P. a. aurifrons*.

[310. *Picumnus borbae* Pelz.

Picumnus borbae Pelzelin, *l.c.* pp. 241, 334 (1869.—Borba, Rio Madeira); Hellmayr, *l.c.* p. 398 (Borba).

Right bank: Borba (Natterer, Hoffmanns).

The male may be at once distinguished from *P. a. aurifrons*, with which it agrees in the pattern of the lower parts, by the longer, brick-red (instead of golden yellow) tips to the feathers of the scaput. Specimens from Itaituba (left bank of the Tapajós River), ‡ and the Upper Ucayali, E. Bartlett coll. in Brit. Mus., are identical with the types from Borba. It is strange that this species should occur side by side with the yellow-fronted *P. a. aurifrons* and *P. a. flavifrons*, still I do not think that it can be a mere colour-variety.]

311. *Ceryle torquata torquata* (Linn.).

Alcedo torquata Linnaeus, *Syst. Nat.* xii. 1. p. 189 (1766.—ex Brisson: Mexico and Martinique).

Ceryle torquata Pelzelin, *l.c.* p. 23 (Borba); Hellmayr, *Nor. Zool.* xiv. p. 402 (Borba).

No. 443. ♀ imm., Calama, 23. viii. 1907. “Iris greyish brown, bill black, base of lower mandible reddish.”

312. *Ceryle americana americana* (Gm.).

Alcedo americana Gmelin, *Syst. Nat.* 1. i. p. 451 (1788.—ex D'Aubenton, Pl. enl. 591, figs. 1, 2: Cayenne).

Ceryle americana Pelzelin, *l.c.* p. 23 (Rio Guaporé, Borba); Hellmayr, *l.c.* p. 402 (Humaytha).

No. 577. (♂) ad., Jamarysinho, 20. ix. 1907. “Iris, feet, and bill black.”—Wing 72; tail 51; bill 43 mm.

313. *Ceryle aenea aenea* (Pall.).

Alcedo (aenea) Pallas in Voeg's *Cat. rais. d'Ois., Adumbrat.* p. 1. no. 54 (1764.—Surinam).

Ceryle superciliosa Pelzelin, *l.c.* p. 24 (Borba); Hellmayr, *l.c.* p. 402 (Humaytha).

No. 747. ♂ ad., Allianca, 5. xi. 1907.—Wing $55\frac{1}{2}$; tail 36; bill $27\frac{3}{4}$ mm.

No. 342. ♂ juv., Calama, 6. viii. 1907.

* *Picumnus flavifrons* Hargitt, *This* 1889, p. 229 (type ex Sarayacu, R. Ucayali, East Peru).

† Hellmayr, *Nor. Zool.* xiv. p. 80.

‡ Idem, *l.c.* p. 26.

Nos. 68, 559, 805. ♀ ♀ ad., Calama, 17. vi. ; Jamarysiuho, 17. ix. ; Allianca, 28. xi. 1907.—Wing 56—57 ; tail 34—35 ; bill 28 mm.

“ Iris dark brown, feet yellowish grey or brownish grey, bill black.”

Identical with Surinam and Cayenne examples.

[314. *Trogon rufus rufus* Gm.

Trogon rufus Gmelin, *Syst. Nat.* 1. i. p. 404 (1788.—ex D'Aubenton, Pl. enl. 736 : Cayenne ; = ♀).
Trogon atricollis Pelzeln, *l.c.* p. 20 (Borba).

T. a. atricollis Hellmayr, *Nov. Zool.* xiv. p. 403 (Humaytha).

Right bank : Borba (Natterer) ; left bank : Humaytha (Hoffmanns).]

[315. *Trogon viridis viridis* Linn.

Trogon viridis Linnaeus, *Syst. Nat.* xii. 1. p. 167 (1766.—ex Brisson : Cayenne) ; Pelzeln, *l.c.* p. 20 (Borba).

Right bank : Borba (Natterer). Widely distributed in South America.]

316. *Trogon violaceus violaceus* Gm.

Trogon violaceus Gmelin, *Syst. Nat.* 1. i. p. 401 (1788.—ex Koelreuter, *Nov. Act. Petrop.* ii. p. 436. no. 7. tab. 16. fig. 8 : Surinam).

T. meridionalis Pelzeln, *l.c.* p. 20 (Borba).

No. 978. ♂ perad., Maruins, 7. vii. 1908. “ Iris brown, feet black, bill pale grey.”—Wing 118 ; tail 128 ; bill 16 mm.

This bird I cannot distinguish from some Cayenne and British Guiana specimens, the upper wing-coverts being narrowly, but distinctly, vermiculated with whitish. Perhaps the uropygium is deeper blue, and the white ends of the three outer rectrices somewhat wider, but these slight divergencies are probably individual.

The distribution of *T. v. violaceus* and *T. v. ramoniana* Dev. & Des Murs* is difficult to understand. The former ranges from French Guiana westwards to the Amazonian slopes of the Colombian Andes, but occurs also on the middle course of the Rio Madeira. *T. v. ramoniana* extends from the Rio Napo (Eastern Ecuador) south to Peru, and is, furthermore, found in Lower Amazonia, specimens from Victoria (left bank of the Xingú) being in every respect similar to Peruvian examples !

317. *Urospatha martii martii* (Spix).

Prionites martii Spix, *Ar. Bras.* i. p. 64. pl. lx. (1824.—“ in sylvis Parae”).

Monotus martii Pelzeln, *l.c.* p. 19 (Borba).

Urospatha m. martii Hellmayr, *Nov. Zool.* xiv. p. 403 (Humaytha).

Nos. 146, 724. Adult (not sexed), ♀ ad., Calama, 1. vii., 23. x. 1907. “ Iris brown or red, feet and bill black.”—Wing 135, 142 ; tail 230 ; bill 40, 44 mm.

Agree with the type in having the tail mainly dark green, and the central rectrices **not** spatulated. Cf. my remarks *l.c.*

U. m. martii is widely distributed in Amazonia, ranging from Eastern Ecuador and Peru to the left bank of the Tapajóz. In Western Ecuador, Colombia, etc., it is replaced by *U. m. semirufa* (Sch.). Cf. my revision of Spix's types, p. 611.

* *Trogon ramoniana* Deville & Des Murs, *Rev. Mag. Zool.* (2) i. p. 331 (1849.—Sarayaçu, Paupa del Sacramento, Eastern Peru).

318. *Prionornis platyrhynchus pyrrholaemus* (Berl. & Stolzmann).

Cf. *Nor. Zool.* xiv. 1907. p. 403 (crit. ; Humaytha).

No. 1030. ♂ ad., Maruins, 17. vii. 1907.—Wing 116 ; tail 202 ; bill 37 mm.

"Iris dark brown, feet and bill black."

Middle pair of rectrices **not** spatulated. Chin and upper throat pale blue, slightly mixed with greenish.

Cf. my remarks *l.c.* pp. 403-4, where a review of the races is given.

319. *Momotus momota nattereri* Sel.

[*Ramphastos Momota* Linnaeus, *Syst. Nat.* xii. 1. p. 152 (1766.—based on Edwards & Brisson (excl. syn. Marcgrave): Cayenne (ex Brisson) fixed as type locality).]

Momotus Nattereri Selater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 251 (1858.—Yungas in Bolivia ; Goyaz, Brazil) ; Pelzeln, *l.c.* p. 19 (Borba).

No. 450. ♀ ad., Calama, 25. viii. 1907.—Wing 132 ; tail 237 ; bill 39 mm.

"Iris brown, feet greyish brown, bill black."

This bird is perfectly identical with typical specimens from Bolivia (Sara) and Mattogrosso (Chapada). There is no trace of a rufous nape-patch, but the lower parts are distinctly suffused with ochreous. Cf. also *Nor. Zool.* xiv. p. 28.

M. m. nattereri represents *M. m. momota* in the districts south of the Amazon and west of the Tapajóz, as well as in Goyaz, Mattogrosso, and Eastern Bolivia. The north-western limits of its range, however, are not exactly known.

320. *Urogalba dea amazonum* Sel.

[*Alcedo Dea* Linnaeus, *Syst. Nat.* x. p. 116 (1758.—ex Edwards, *Orn.* pl. 10 : Surinam).]

Urogalba amazonum Selater, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 14 (1855.—"in Brasil. Boreali, Pará, et fl. Amazonum").

U. dea amazonum Hellmayr, *Nor. Zool.* xiv. p. 401 (Humaytha).

Galbula paradisica (nec Linn.) Pelzeln, *l.c.* p. 24 (part. : Salto do Girão, Rio Madeira).

No. 676. ♂ ad., S. Isabel, Rio Preto, 11. x. 1907.—Wing 96 ; tail — ; bill 61 mm.

No. 678. ♀, S. Isabel, 11. x. 1907.—Wing (moulting) ; tail 130 ; bill 51½ mm.

"Iris brown, feet and bill black."

The skins agree with Pará examples in the Munich Museum, the feathers about the forehead and in the superciliary region being broadly edged with white brown. The male has the wing fully as long as Selater's type.

I consider it useful to recapitulate what we know about the distribution of *U. dea dea* and its southern representative. *U. dea dea* inhabits French, Dutch, and British Guiana, the banks of the Rio Negro, from Marabitanas and San Carlos down to Manáos, and extends to Iquitos, north bank of the Peruvian Amazons. *U. dea amazonum* is found along the south bank of the Amazons and on its southern affluents, from Pará to Tefé (Rio Solimões). The main valley of the Amazons thus divides the ranges of the two nearly allied forms. Cf. *Nor. Zool.* xiv. 1907. pp. 27-8.

[321. *Galbula galbula* (Linn.).

Alcedo Galbula Linnaeus, *Syst. Nat.* xii. 1. p. 182 (1766.—ex Edwards et Brisson : Cayenne excl. syn. Marcgrave, Brazil).

Galbula viridis Pelzeln, *l.c.* p. 24 (Borba).

Right bank : Borba (Natterer). Not recorded from any locality farther south, but widely distributed in the Guianas, in the Orinoco region, etc.]

322. *Galbula rufoviridis* Cab.

(*Galbula rufoviridis* Cabanis in "Ersch & Gruber's *Encycl. Wissensch. & Künste* lii. 1. p. 308" *).
G. maculicauda Pelzeln, *Lc.* p. 24 (Theotónio).

Nos. 73, 382. ♂♂ ad., Calama, 18. vi., 12. viii. 1907.—Wing 78, 79; tail 89, 91½; bill 48, 50 mm.

Nos. 406, 497, 721. ♀♀, Calama, 16, 31. viii.; S. Isabel, 19. x. 1907.—Wing 77—80; tail 84—94; bill 44—48 mm.

"Iris brown, feet yellow or grey, bill black."

Compared with a good series of *G. rufoviridis* from Mattogrosso, Bahia, Maranhão, and Eastern Bolivia, these specimens have the green apical mark to the two outer rectrices slightly less extended, though one of the females is scarcely different on this score. In the females the throat, too, is rather paler buff than in the majority of the examples from more southern localities. The range of *G. rufoviridis* has recently been traced as far north as Monte Alegre and Marajó.† It is most probably a subspecies of *G. ruficauda* Cuv., but I have not yet had time to thoroughly work out its relations.

[323. *Galbula tombacea cyanescens* Dev.]

[*Galbula tombacea* Spix, *1. v. Bras.* i. p. 55. pl. lviii. (1824.—"in sylvis fl. Amazonum").]

Galbula cyanescens Deville, *Rev. Mag. Zool.* (2) i. p. 56 (1849.—"les bords de l'Amazonne"—the types in the Paris Museum are from Sarayaça, Ucayali R.).

G. tombacea cyanescens Hellmayr, *Nor. Zool.* xiv. p. 402 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Since writing the account in my revision of Spix's types ‡ I have studied the series of these birds in the Tring, British, and Paris Museums, and a few words about the results arrived at may be welcome to ornithologists.

G. t. tombacea Spix, with the forehead and anterior portion of the crown smoky brown, extends from the north bank of the Peruvian Amazons (Iquitos, Pebas) to the eastern slopes of the Colombian Andes (Bogotá coll.). Of this form I have examined twenty Bogotá skins; one adult male from Iquitos (Mus. II. v. Berlepsch); a couple from Pebas (Hauxwell) and an adult male from Elvira, in the British Museum; and three adult males, obtained at Pebas by Castelnau et Deville, in the Paris Museum. § Spix's type, the exact locality of which is not recorded, belongs to the same race.

G. t. cyanescens Deville, with the whole of the pileum shining green, replaces the preceding in Northern Peru, south of the Amazons, as well as near Nauta, also in Central and South-Eastern Peru, ranging eastwards to Humaytha, left bank of the Rio Madeira. I have examined specimens from the following localities: La Merced (4 ♂♂ ad., 2 ♀♀), La Gloria (1 ♀), Pozuyo (♂♀), Chuchurras, Huánuco (♂♀ ad.), Huaynapata (1 ♂ ad.), Cosnipata (1 ♂♀), Sarayaça, Ucayali (1 ♂ ad., 2 ♀♀, 1 juv.: Castelnau coll., types of *G. t. cyanescens*), Nauta (2 ♂♂ ad.), Rio Jurná (1 ♂ ad.), Humaytha (2 ♂♂ ad.).

Three specimens from the Rio Javarri (two in the British, one in the Paris

* I have not been able to verify the above reference.

† Sneath, *Journ. f. Ornith.* 1906. p. 529.

‡ Abhandl. Akad. Wissensch. München II. Kl. vol. xxii. 3, 1906, pp. 691-2.

§ Dr. Sclater's assumption (*Monogr. Jacamars* p. 24) that both *G. t. tombacea* and *G. t. cyanescens* were obtained by Deville on the Rio Ucayali is not correct. The examples of the former are from Pebas, but those of the latter from the Ucayali. Besides these, there is an adult male, taken January 2, 1847, on the Rio Javarri (see above), in the Paris Museum.

Museum) are slightly intermediate between *tombacea* and *cyaneus*, the smoky brown feathers of the forehead being narrowly edged with green or bluish green.

As pointed out by me (*l.c.* p. 402), the Humaytha birds have a larger, more whitish chin-spot than the Peruvian ones. However, it is well to remark that this character is subject to much individual variation in the northern *G. t. tombacea*.]

324. *Galbula cyanicollis* Cass.

Galbula cyanicollis Cassin, *Proc. Acad. N. Sci. Philad.* v. p. 154. pl. vii. (1851.—Pará); Pelzeln, *l.c.* p. 24 (Borba); Hellmayr, *Nov. Zool.* xiv. p. 402 (Humaytha).

Nos. 186, 231, 390. ♂ ad., Calama, 7, 16. vii., 14. viii. 1907.—Wing 77—81 tail 82—84; bill 43—46 mm.

No. 927. ♂ ad., Marnins, 12. vi. 1908.—Wing 81; tail 83; bill 43½ mm.

No. 37. ♀ imm., Calama, 13. vi. 1907.—Wing 77½; tail 79; bill 41 mm.

"Iris dark brown, feet yellow, bill black, lower mandible yellowish green."

These specimens agree perfectly with several from Pará, while those previously obtained by Mr. Hoffmanns near Humaytha (left bank) had the cheeks and malar region golden green (instead of blue). Cf., however, the remarks by Miss Snethlage in *Journ. f. Ornith.* 1908. p. 20.

G. cyanicollis ranges from Pará westwards to the Jurná and Purús Rivers.

[325. *Galbula leucogastra leucogastra* Vieill.

Galbula leucogastra Vieillot, *Nour. Dict.* xvi. p. 444 (1817.—based on "*Jacamar à ventre blanc*," Levaillant, *Hist. Nat. Promérops et Guépiers*, Suppl. p. 46. pl. II.—"du Brésil"; we substitute Cayenne); Pelzeln, *l.c.* p. 24 (Borba).

Right bank: Borba (Natterer).

The two skins from this locality in the Vienna Museum agree perfectly with others from Guiana. *G. l. leucogastra* ranges from French Guiana westwards to the upper Rio Negro (Guia, Marabitanas), and southwards to Borba, on the Lower Madeira. An adult male from Marabitanas, belonging to the Vienna Museum, has a larger bill and slightly more coppery suffusion both on back and breast, pointing towards *G. l. chalcothorax* Sel.* Typical specimens of the latter, however, may be recognized by their longer wings and nearly uniform copper-red back and breast. There are several examples from the Rio Napo in the Munich Museum.]

326. *Jacamerops aurea* (P. L. S. Müll.).

Alcedo Aurea P. L. S. Müller, *Natursyst.* Suppl. p. 94 (1776.—ex Vosmaer: Berbice, British Guiana).

Jacamerops grandis Pelzeln, *l.c.* p. 25 (Borba).

No. 226. ♂ ad., Calama, 15. vii. 1907. "Iris dark brown, feet dark grey, bill black."—Wing 110; tail 132; bill 51 mm.

Agreeing with Guianan specimens. Forehead distinctly bluish green.

[327. *Bucco capensis* Linn.

Bucco capensis Linnaeus, *Syst. Nat.* xii. 1. p. 168 (1766.—ex Brisson: "Le Barbu," *Ornith.* iv. p. 92, pl. vi. fig. 2: "Guiana"—not "Cap. C. spei" as erroneously given by Linnaeus).

B. collaris Pelzeln, *l.c.* p. 22 (Borba).

Right bank: Borba (Natterer).

Amazonian specimens do not differ in any way from typical Guianan skins.]

* *Galbula chalcothorax* Selater, *Proc. Zool. Soc. Lond.* xxii. 1854. p. 110 (1855.—Quijos, Eastern Ecuador).

328. *Bucco hyperrhynchus* Scf.

Bucco hyperrhynchus Sclater, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 193. pl. cv. (Jan. 1856.—“Upper Amazons”); Hellmayr, *Nor. Zool.* xiv. p. 399 (Humaytha).

No. 785. ♀ ad., Allianca, 13. xi. 1907.—Wing 116; tail 90; bill $40\frac{1}{2}$ mm.
“Iris yellowish red, feet and bill black.”

This bird, as well as the two from Humaytha obtained by Mr. Hoffmanns on his first Madeira journey, belong undoubtedly to the same form as a series from Pará. But whether the so-called *B. dysoni* Scf. from Central and Western South America is really separable appears to be very questionable, since there is much individual variation as regards size of the bill and amount of white on the forehead. Yet I have never seen any specimen from Central America, Ecuador, etc., that had so powerful a bill as is often found in collections from Pará.

On the other hand, *B. macrorhynchus* Gm. (ex Cayenne, British Guiana, Rio Branco and Manáos) is quite distinct specifically, and easily recognizable by the lack of the white forehead, its shorter bill, and by having the feathers of the black pectoral band narrowly margined with white.

[329. *Bucco tamatia tamatia* Gm.

Bucco Tamatia Gmelin, *Syst. Nat.* 1. i. p. 405 (1788,—ex D'Aubenton, Pl. enl. 746. fig. 1: Cayenne); Pelzeln, *Orn. Bras.* i. p. 22 (Engenho do Gama, S. Vicente, Borba).

Right bank: Borba; Engenho do Gama and São Vicente, Rio Guaporé (Natterer).

Thanks to the kindness of Dr. Lorenz, Natterer's series has been submitted to my inspection. Besides four examples from the upper Rio Negro, there are two adult females from Borba, an adult male and a young female from S. Vicente, and the Munich Museum possesses an adult male obtained at Engenho do Gama. This series agrees, in the deep tawny colour of the throat, amount of black spotting on the lower parts, size, etc., with numerous specimens I have from Cayenne, British Guiana, Maijures (Orinoco), and Surinam, and unquestionably represents typical *B. t. tamatia*.]

[330. *Bucco tamatia pulmentum* Scf.

Bucco pulmentum Sclater, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 194. pl. cvi. (Jan. 1856.—“Upper Amazons”).

B. t. pulmentum Hellmayr, *Nor. Zool.* xiv. p. 400 (Humaytha).

Left bank: Humaytha (Hoffmanns).

The single adult female obtained by Mr. Hoffmanns during his first expedition agrees perfectly with Sclater's type and other Upper Amazonian skins in the British Museum. It differs from *tamatia*, of the right bank, by having the throat very much paler, light buff (instead of deep ochraceous or tawny). The other characters, viz. greater amount of rufous on forehead and coarser spotting of the breast, claimed by Dr. Sclater, do not prove to be constant.

This is another instance of the Madeira Valley dividing the ranges of two nearly allied forms.

A third race of the *tamatia* group inhabits the Pará district, N.E. Brazil. It has the throat fully as dark or even deeper tawny than *B. t. tamatia*, but may be recognized by the much larger, more crowded, black spots on the breast and sides of the belly, many of the feathers showing, besides the apical spot, a broad black cross-band in the middle.

The range of the three forms is as follows:—

(a) *Bucco tamatia tamatia* Gm.

Type locality: Cayenne.

Hab. French Guiana: Cayenne (Cherrie, etc.), Saint-Jean-du-Maroni (Le Moul; Mus. Monac.). Surinam: Paramaribo, Kwata (Penard; Tring Mus.). British Guiana: Camacusa, Rio Rupununi, Annai, etc. (Whitely). Venezuela: Maipures, Orinoco R. (Cherrie). North Brazil: Marabitanas, Rio Vaupé, upper Rio Negro: Manãos; Forte do São Joaquim, Rio Branco (Natterer); right bank of the Rio Madeira: Borba, south to Engenho do Gama and S. Vicente, on the Guaporé (Natterer).

Examined: 3 French Guiana, 7 Surinam, 4 British Guiana, 2 Maipures, 1 Marabitanas, 1 Rio Vaupé, 1 Manãos, 1 Rio Branco, 2 Borba, 1 Engenho do Gama, 2 S. Vicente.

(b) *Bucco tamatia palmentum* Sel.

Type locality: Upper Amazons.

Hab. Eastern Ecuador; Sarayacu (Buckley). Eastern Peru: Pebas (Castelnuo & Deville), Chamicuro (Bartlett), etc. W. Brazil: Humaytha, left bank of Rio Madeira (Hoffmanns).

Examined: 3 Eastern Ecuador, 3 Eastern Peru, 1 (*type*) "Upper Amazons," 1 Humaytha.

(c) *Bucco tamatia hypnaleus* (Cab. & Heine).

Chamornis hypnaleus Cabanis & Heine. *Mus. Heinean*, iv. 1, p. 145, footnote (1863.--Pará).

Type locality: Pará.

Hab. N.E. Brazil: Pará (Natterer), Rio Capim (Wallace), Boavista, Marajó (Steere).

Examined: 1 ♂ ad., Pará (Natterer); 1 ♀ ad., Boavista (Tring).]

[331. *Bucco chacuru* Vieill.

Cf. Hellmayr, *Nor. Zool.* xiv. p. 400 (Humaytha).

Left bank: campos of Humaytha (Hoffmanns).

No additional material has come to hand. The Humaytha birds agree in size with South Brazilian and Paraguay specimens, but are perhaps different in coloration (cf. *l.c.*). Skins from Eastern Bolivia (Santa Cruz) and South-Eastern Peru (Santa Ana) are much larger.]

332. *Bucco macrodactylus* (Spix).

Cyphos macrodactylus Spix, *Av. Bras.* i. p. 51, pl. xxxix, fig. 2 (1824.—"in sylvis flum. Amazonum").

Bucco macrodactylus Pelzeln, *l.c.* p. 22 (S. João do Crato); Hellmayr, *Nor. Zool.* xiv. p. 400 (Humaytha).

Nos. 835, 877. ♂ ♀ ad., Marmellos, 20, 27. xii. 1907.—Wing 66; tail 54, 56; bill 23 mm.

No. 393. ♀ ad., Calama, 15. viii. 1907.—Wing 67; tail 64; bill 23 mm.

"Iris red or brownish red, feet grey, bill black."

Specimens from the Madeira agree well with those from East Ecuador and Bogotá collections. *B. macrodactylus* is widely distributed in Upper Amazonia.

333. *Malacoptila rufa* (Spix).

Bucco rufus Spix, *Ar. Bras.* i. p. 52. pl. xl. fig. 1 (1824.—“in sylvis fl. Amazonum”).

Malacoptila rufa Hellmayr, *l.c.* p. 400 (Humaytha).

Nos. 565, 564. ♂ ♀ ad., Jamarysinho, 16. ix. 1907.—Wing 91, 92; tail 69, 67; bill 24, 26 mm.

Nos. 797, 798, 801. ♂ imm., ♀ ♀, Allianca, 22, 23. xi. 1907.—Wing 91—93; tail 66—70; bill 24—27 mm.

No. 893. ♀ ad., Maruins, 31. v. 1908.—Wing 93; tail 65; bill 25 mm.

“Iris red or reddish brown, feet grey or greyish brown, bill black, base of lower mandible yellowish.”

The specimens are identical with the type in the Munich Museum. *M. rufa* ranges all over Amazonia from Eastern Peru to Pará.

[334. *Monasa morphoeus peruana* Sel.

[*Bucco morphoeus* Hahn, *Vögel aus Asien, etc.* Lief. xiv. pl. 2 (1823.—“Brasilien”).]

Monasa peruana Selater, *Proc. Zool. Soc. Lond.* xxiii. 1855. p. 194 (Jan. 1856.—in *Peruvia orientali* in regionibus fl. Amazonum superioris: Chamicurros [Hauxwell]).

Monasa leucops Pelzeln, *l.c.* p. 22 (part.: Borba; Rio Içanna).

Right bank: Borba (Natterer).

The three females obtained by Natterer at Borba, as well as another from the Rio Içanna (upper Rio Negro), in the Vienna Museum, are, in every respect, similar to examples from the Rio Napo, East Ecuador, in the Munich Museum. The series differs from *M. m. morphoeus*, of East Brazil (Rio de Janeiro to Pará), in smaller white chin-spot, lesser amount of white about the forehead, and generally smaller size (wing 122—127, tail 116—122 mm.).

335. *Monasa nigrifrons* (Spix).

Bucco nigrifrons Spix, *Ar. Bras.* i. p. 53. pl. xli. fig. 2 (1824.—“in sylvis flum. Solimoëns”).

Monasa nigrifrons Pelzeln, *l.c.* p. 22 (Borba).

No. 219. ♂ ad., Calama, 13. vii. 1907. “Iris reddish brown, feet black, bill clear red.”—Wing 123; tail 115; bill 33 mm.

Identical with the type. Specimens from Eastern Ecuador (Rio Napo) are rather darker, more of a blackish grey, though not always so.

[336. *Nonnula rubecula cineracea* Sel.

[*Bucco rubecula* Spix, *Ar. Bras.* i. p. 51. pl. xxxix. fig. 1 (1824.—“prope pagum Malhada, fluminis St. Francisci proximum,” Southern Bahia, E. Brazil).]

Nonnula cineracea Selater, *Proc. Zool. Soc. Lond.* 1881. p. 778 (1881.—Rio Javarri).

Monasa rubecula (nec Spix) Pelzeln, *l.c.* p. 23 (part.: Borba, Rio Madeira; Marabitanas and Rio Içanna, upper Rio Negro).

Right bank: Borba (Natterer).

Dr. Lorenz having kindly forwarded to me the whole of Natterer's series, I am enabled to state that the Amazonian specimens obtained by this celebrated naturalist belong to the pale race described by Dr. Selater from a single example in the British Museum. An adult female from Borba, June 9, 1830, in the Vienna Museum, agrees with the type in all essential particulars, except that the bill is not quite so long, and the back slightly more tinged with brownish. Both differ from a good series of *N. r. rubecula* (from Bahia, S. Paulo, Goyaz, and Paraguay) by lacking the whitish patch below the eye (the cheeks and ear-coverts

being uniform dark smoky grey); by having the upper parts dull smoky grey, with but a faint brownish tinge (instead of being more or less brightly rufescent brown); the throat and foreneck much paler, dull buff (instead of bright ochraceous), shading into pale greyish buff on flanks; and by their longer bill and decidedly shorter tail.

A young bird in fluffy plumage, from the upper Rio Negro, belongs most certainly also to *cineracea*, although it is darker, more smoky brown, on the back, and more ochraceous on the throat. But it is still less brightly coloured than young birds of *N. r. rubecula*, and shows the long bill as well as the uniform blackish grey sides of the head characteristic of *N. r. cineracea*.

The range of the two races is, as far as our present knowledge goes, the following:—

(a) *N. rubecula rubecula* (Spix)

Type locality: Malhada, on the S. Francisco River, Southern Bahia, East Brazil.

Hab. South-Eastern Brazil: Bahia (Wucherer coll., Mns. Brit.), Malhada, on the S. Francisco R. (Spix); Goyaz (Natterer, Baer); S. Paulo: Victoria (Hempel), Ypanema (Natterer), Iguapé, Avanhadava, Bebedouro, Itapirá, Mattão (Mns. Paulista). Minas Gerais: Lagoa Santa (Reinhardt). Rio de Janeiro: Novo Friburgo (Burmeister). Paraguay: Bernalcé, east of Asunción (Wieninger; Mns. Monac.).*

Measurements of ten adults (including type): wing 64—69; tail 62—64; bill 19—21 mm.

(b) *N. rubecula cineracea* Sel.

Type locality: Rio Javarri, W. Brazil.

Hab. Western Brazil: Rio Javarri (Bates): Marabitanas and R. Içana, upper Rio Negro; Borba, Rio Madeira (Natterer).

Dimensions:

			Wing.	Tail.	Bill.
1. Adult, R. Javarri.	Type of subspecies.	Brit. Mus.	67	60	25 mm.
2. ♀ ad., Borba, June 9, 1830.	Vienna Museum		67	57	22 mm.
3. ♂ juv., Upper Rio Negro.	Vienna Museum		65½	59	23 mm.]

[337. *Nonnula sclateri* Hellm.

Nonnula sclateri Hellmayr, *Bull. B. O. C.* xix. p. 55 (1907.—Humaytha); idem., *Nor. Zool.* xiv. p. 401.

Left bank: Humaytha (Hoffmanns).

This species, of which Mr. Hoffmanns obtained a single adult female on his first expedition to the Rio Madeira in 1906, is somewhat like *N. r. rubecula*, having the upper parts warm brown, but may be distinguished by its much smaller size (wing 62; tail 53½ mm.); deep ochraceous buff (instead of white or pale buff) frontal band, lores, and chin; duller, more greyish fulvons, throat and foreneck, which, however, are much deeper in tint than in *N. r. cineracea*, etc. Like the latter race, it lacks the whitish patch below the eye, and has the flanks

* Sclater (*Monogr. Jacamars and Puff Birds* p. 134) also records it from the Lower Amazons, but I have not been able to ascertain on what authority. Wallace certainly did not obtain specimens anywhere on the Lower Amazons (cf. *P. Z. S. Lond.* 1867. pp. 566-96). It is also to be remembered that none of the more recent travellers (Robert, Hoffmanns, Snelhage) met with *N. r. rubecula* in the Pará district.

pale buff. It is thus seen to be somewhat intermediate between *N. r. rubecula* and *N. r. cineracea*, but differs from both at first sight by the bright red, nearly bare and slightly protruding eyelid, which, in its allies, is black, beset with numerous white plumules.]

338. *Chelidoptera tenebrosa tenebrosa* (Pall.).

Cuculus tenebrosus Pallas, *Nene Nord. Beytr.* iii. p. 2. pl. i. fig. 1 (1782.—Surinam).

Chelidoptera t. tenebrosa Hellmayr, *Nor. Zool.* xiv. p. 401 (Humaytha).

No. 1054. ♀ ad., Marnins, 22. vii. 1908. "Iris dark brown, feet and bill black."—Wing 107; tail 54; bill 20 mm.

Identical with topotypical specimens from Surinam.

339. *Capito auratus intermedius* Berl. & Hart.(?).

[*Buceo auratus* Dumont, *Dict. Sci. Nat.* iv. p. 54 (1816.—based on Levaillant, *Hist. Nat. Ois. Paradis et Rolliers*, etc. ii. 1806. p. 63. pl. 27: "Le Barbu Orangé du Pérou").]

Capito auratus intermedius Berlepsch & Hartert, *Nor. Zool.* ix. p. 98 (1902.—Xericagua, Upper Orinoco).

No. 377. ♂ ad., Calama, 11. viii. 1907. "Iris light red, feet plumbeous, bill black, base of lower mandible grey."—Wing 85; tail 56; bill 21½ mm.

Nos. 448, 453. ♀ ad., ♀ imm., Calama, 24, 26. viii. 1907. "Iris red, feet blue-grey or green, bill black."—Wing 85, 82; tail 58, 53; bill 21½, 20 mm.

In *Nor. Zool.* xiv. 1907. p. 82 I have given a short review of the geographical races of *C. auratus*. Alluding to the singular distribution of *C. a. intermedius*, I said that I could not distinguish Marcapata and Bolivian specimens from the typical Orinoco birds. Since writing this I have had the opportunity of studying the series in Connt Berlepsch's Museum, and find that this statement requires modification. Specimens from S.E. Peru and Bolivia are certainly very much like *C. a. intermedius*, and the females agree with the Orinoco ones in having the throat unspotted deep orange; but the pileum is decidedly paler, sulphur-yellow, without any orange admixture. The three skins from Calama are identical with the Marcapata series except for the ground-colour of the throat being clear orange, as in *C. a. auratus* from Northern Peru, Ecuador, and Bogotá. The throat, in the females, is, however, entirely unspotted. Though I feel pretty sure that the birds from the Rio Madeira, N. Bolivia, and Marcapata, S.E. Peru, constitute a recognizable race, I prefer to await further material before proposing any formal separation, inasmuch as those from the first-named locality may again be different.

340. *Capito aurantiicollis* (Sch.).

Eubucco aurantiicollis Sclater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 267 (Jan. 1858.—Rio Javarri, N.W. Brazil), descr. ♂ ad.

Capito melanotis (Hartlaub MS.) Sclater, *Ibis* 1861. p. 190 (part.: Ucayali [Huxwell], Rio Javarri [Bates]), descr. ♀.*

No. 1069. ♂ ad., Calama, 10. ix. 1908. "Iris dark red, feet green, bill yellowish green."—Wing 79; tail 45; bill 17 mm.

No. 1070. ♀ ad., Calama, 10. ix. 1908. "Iris dark red, bill dark green."—Wing 66; tail 43; bill 16½ mm.

* The examples from Rio Napo and Bogotá mentioned by Sclater belong to *C. r. richardsoni* Gray and *C. r. granadensis* Sclater, respectively. Type of *C. melanotis* is specimen *k* of *C. aurantiicollis* (*Cat Birds Brit. Mus.* xix. p. 116: ♀, Ucayali, July 1852, J. Huxwell coll.), marked as such in Mr. Sclater's own handwriting.

The Calama specimens agree perfectly with others from Eastern Peru (Samiria, Ucayali) and the valley of the Rio Jurúá.

C. aurantiicollis is nearly allied to *C. r. richardsoni* Gray, of Eastern Ecuador, from which it differs, in the male sex, by having the nape pale yellowish instead of bluish grey, and the foreneck deep orange instead of clear yellow. The female also agrees with that of *C. r. richardsoni* in all essential characters (*i.e.* forehead hoary-grey, crown and back olive-green, sides of the head sooty blackish, narrow whitish superciliary streak ending in a golden yellow stripe above and behind the ear-coverts, malar region and throat dingy pale greyish, etc.), but may be readily distinguished by its broader and deep orange, not golden yellow, jugular band. To prevent further confusion, I may state that the description of *C. aurantiicollis*, ♀, in the *Cat. Birds Brit. Mus.* xix. p. 116, has, by some mistake, been drawn up from a female specimen of *C. bourcierii* (Lafr.), while in the key, page 108, its characters are correctly indicated. The specimens *d, f, h, k* of Shelley's list (p. 116), marked "female" by the collectors, do not at all agree with his description, being, however, practically identical with my ♀♀ from Calama and Rio Jurúá.

The range of *C. aurantiicollis* is as follows:—

N.W. Brazil: Rio Javarri (Bates), Rio Jurúá* (Garbe); Ponto Alegre, Bom Lugar, Canacny on the Rio Purús † (Mus. Goeldi); Calama, Rio Madeira (Hoffmanns). Peru: Sarayacu, Santa Cruz, Ucayali (Bartlett), Samiria (Hauxwell), Monterico (Jelski).

341. *Ramphastos cuvieri cuvieri* Wagl.

Ramphastos Cuvieri Wagler, *Syst. Av. Gen. Ramphastos* sp. 5 (1827.—"in Brasilia versus flumen Amazonum"—Mus. Monac.); Pelzeln, *l.c.* p. 233 (Borba); Hellmayr, *Nov. Zool.* xiv. p. 399 (Humaytha).

No. 588. ♂ ad., Jamarysinho, 25. ix. 1907.—Wing 245; tail 170; bill 217 mm.

Nos. 302, 492. ♂ ♀ ad., Calama, 30. vii., 31. viii. 1907.—Wing 247, 230; tail 166, 168; bill 195, 175 mm.

No. 491. ♀ juv., Calama, 31. viii. 1907.—Wing 228; tail 168; bill 152 mm.

No. 1015. (♀) ad., Marnins, 13. vii. 1908.—Wing 230; tail 163; bill 175 mm.

"Iris brown, feet pale blue, bill black, culminal stripe and basal band of upper mandible yellowish green, base of lower jaw light blue."

The specimens agree with the type in the Munich Museum. The black portions of the bill are uniform, without any red patch on the upper mandible. The colour of the upper tail-coverts is somewhat variable, being either sulphur-yellow with darker, more orange tips, or nearly uniform bright orange-yellow. Some specimens show a slight yellowish tinge on the foreneck, while in others the latter is white like the throat.

342. *Ramphastos culminatus* Gould.

Ramphastos culminatus Gould, *Proc. Zool. Soc. Lond.* i. 1833. p. 70 (1833.—"Mexico," errore! hab substit. Rio Solimões, Brazil, auct. Berl. & Hart.); Pelzeln, *l.c.* p. 234 (Borba); Hellmayr, *l.c.* p. 399 (Humaytha).

Nos. 593, — . ♀ ♀, Jamarysinho, 26. ix. : Marmellos (left bank), 27. xii. 1907. "Iris brown, feet light blue, bill black, culminal and basal stripe yellow."—Wing 190, 200; tail 150, 163; bill 138, 149 mm.

* Thering, *Revis. Mus. Paul.* vi. p. 416.

† Snethlage, *Journ. f. Ornith.* 1908. p. 19.

The Jamarysinho bird has the foreneck tinged with pale yellow, and the upper tail-coverts deep orange with dark red tips ; while in the Marmellos specimen the former is white like the throat, and the upper tail-coverts are sulphur-yellow with the apical portion light orange-yellow. Similar variation is to be observed in Peruvian birds.

[343. *Ramphastos osculans* (Gould).

Ramphastos osculans Gould, *Proc. Zool. Soc. Lond.* iii. 1835. p. 156 (1835.—"in Brasília," type in the Vienna Museum, coll. Natterer [cf. *Monogr. Ramph.* 1st edit. pl. 5], sc. Rio Madeira: Ribeirão, Borba *); Pelzeln, *l.c.* p. 234 (Ribeirão, Borba).

Right bank : Borba, Ribeirão (Natterer).

Three specimens, including the type, all from Borba, were kindly lent me by the authorities of the Vienna Museum. After comparing them with several skins of *R. culminatus*, I must confess that I am rather doubtful about the distinctness of *R. osculans*. The three examples of the latter differ only by having the throat, foreneck, and cheeks more or less deeply yellow, while these parts in *R. culminatus* are pure white, sometimes with a pale yellow tinge on the lower foreneck. In other respects, notably in the shape of the bill (culmen bounded by a distinct furrow on each side), the two supposed "species" are practically identical. Pelzeln (*l.c.* footnote 1) has already called attention to the great variation in the coloration of the throat, etc., and upper tail-coverts, as shown by Natterer's series. In the three skins before me the colour of the upper tail-coverts varies from sulphur-yellow to scarlet with orange bases, and a similar variation in *R. culminatus* is mentioned above.

What *R. osculans* really is cannot be decided with the limited material at our command. The so-called "*osculans*" from the "Rio Negro" and Munduapo (Orinoco) should also be compared with those from the Rio Madeira.]

[344. *Pteroglossus aracari aracari* (Linn.).

Ramphastos Aracari Linnaeus, *Syst. Nat.* x. p. 104 (1758.—based on Marcgrave's "*Aracari*," *Hist. Nat. Bras.* p. 217 : N.E. Brazil; cf. *Nov. Zool.* xii. 1905. p. 300).
Pteroglossus Wiedii Pelzeln, *l.c.* p. 235 (Borba).

Right bank : Borba (Natterer).

Specimens from Borba, as well as others from Pará, Maranhão, and Itaituba (Rio Tapajóz), agree with South Brazilian examples. The northern form, *P. aracari atricollis* (P. L. S. Müll.) (*aracari* of Gould, Sturm, Selater, etc.), with broad black culminal stripe, is apparently confined to the Guianas.]

345. *Pteroglossus castanotis australis* Cass.

[*Pteroglossus castanotis* Gould, *Proc. Zool. Soc. Lond.* i. 1833. p. 119 (1834.—"Brasília"; we fix Rio Solimões as type locality).]
P. castanotis b. australis Cassin, *Proc. Acad. Nat. Sci. Philad.* 1867. p. 112 (1867.—Rio Parauá—Capt. Page coll.).

No. 478. ♂ ad., Calama, 29. viii. 1907.—Wing 158; tail 154; bill 133 mm.

Nos. 451, 480. ♀ ♀, Calama, 25, 29. viii. 1907.—Wing 158, 162; tail 151, 158; bill 115, 125 mm.

Nos. 691, 706. ♂ ♂ ad., S. Isabel, 13, 16. x. 1907.—Wing 160, 155; tail 157; bill 140 mm.

* Berlepsch & Hartert (*Nov. Zool.* ix. 1902. p. 100) erroneously substituted "Rio Negro" as type locality. Gould, however, based his description upon Natterer's skins.

"Iris white, feet green, bill black, buff and yellow."

The series forms the passage to the northern *P. c. castanotis*, the crown being black without any chestnut tinge, but the sides of the head and throat are coloured as in *australis* from Paragnay and Mattogrosso. Occasionally black-headed examples are also met with in the latter countries.

P. c. australis inhabits the Brazilian central provinces Goyaz and Mattogrosso (north to the Rio Machados), Eastern Bolivia and Paragnay. Cf. *Nov. Zool.* xv. 1908, pp. 84-5.

346. *Pteroglossus bitorquatus sturmii* Natt.

[*Pteroglossus bitorquatus* Vigors, *Zoolog. Journ.* ii. p. 481 (1826.—no locality).]

Pteroglossus Sturmii Natterer in Sturm, *Monogr. Rhynchophag.* Heft 3 [p. 13, tab. 7] (1842.—Borba, Rio Madeira); Pelzeln, *Zur Orn. Bras.* iii. 1869, p. 237 (Borba).

Nos. 488, 447. ♂ ad., ♂ fere ad., Calama, 24, 30. viii. 1907. "Iris brown, feet green, upper mandible and tip of lower one yellowish green, remainder of the latter black."—Wing 128, 124; tail 143, 150; bill 100 mm.

No. 410. ♂ juv., Calama, 17. viii. 1907. Soft parts as above.—Wing 118; tail 123; bill 94 mm.

No. 589. ♂ ad., Jamarysinho, Rio Machados, 25. ix. 1907. Soft parts as above.—Wing 124; tail 134; bill 97 mm.

No. 576. ♀ imm., Jamarysinho, 20. ix. 1907. "Iris reddish brown, feet dark green, bill coloured as above."—Wing 122; tail 125; bill 79 mm.

No. 939. ♂ ad., Marnins, Rio Machados, 21. vi. 1908. "Iris dark brown, feet light green, bill yellowish green, lower mandible black."—Wing 123; tail 143; bill 94 mm.

Nos. 905, 938. ♀ ad., ♀ vix ad., Marnins, 4, 21. vi. 1908. "Iris brownish red, feet and bill as above."—Wing 123, 116; tail 140, 131; bill 83 mm.

No. 906. ♀ juv., Marnins, 4. vi. 1908. "Iris reddish brown, feet pale plumbeous, upper mandible dull yellowish, lower one black."—Wing 119; tail 133; bill 79 mm.

This rare species was hitherto represented by a single male specimen in the Vienna Museum, obtained by Natterer, in 1830, near Borba on the right bank of the Rio Madeira.

P. b. sturmii is most nearly allied to *P. b. bitorquatus* from the Pará district, and, like it, has a broad yellow jugular band, but differs by its black lower mandible, the extreme tip only being yellowish. Another difference between the two forms appears to exist in the colour of the eye. Both Natterer and Hoffmanns state the iris to be brown or reddish brown in *P. b. sturmii*, orange or reddish yellow in *P. b. bitorquatus*.

The adult ♂♂ (Nos. 447, 488, 589, 939) have the top of the head glossy black and a large spot on the chin dull black. The upper back is strongly suffused with crimson, and there is a patch of the same colour on the uropygium.

The young male (No. 410) has the red on the mantle and breast duller and less extended, and the upper mandible duller, more greyish yellow. The upper wing-coverts as well as the feathers of the lower back show narrow pale reddish apical margins.

The females differ from the males by having the top of the head dull brownish black, the sides of the head and the throat darker chestnut, and by lacking the blackish chin-spot. Besides, all dimensions are less, especially the bill is much

shorter. In two specimens (Nos. 905, 938) there is a narrow blackish line on the upper mandible, separating the whitish "teeth" from the yellowish colour of the culmen.

The young female (No. 906) is even paler and duller red on the mantle, breast, etc., than the young male (No. 410); the feathers of the pileum are edged with pale red, and the prominent bright reddish yellow lamella at the base of the bill is altogether absent.

The colour of the under tail-coverts is rather variable in *P. b. sturmi*. They are either all pale yellow (Nos. 447, 939), or the longer ones are clear rufescent brown, at least their apical portion.

Nos. 488, 410, 589, 576, 906 are preserved in the Tring Museum, Nos. 939 and 905 passed into the Munich Museum, while Nos. 447 and 938 have been incorporated in the collection of Count Berlepsch.

P. b. sturmi, *P. b. bitorquatus*, and the recently described *P. b. reichenowi** form a natural group, replacing each other geographically.

(a) *P. bitorquatus bitorquatus* Vig. Pará district: Pará, S. Antonio do Prata, Ourém, etc.

(b) *P. bitorquatus reichenowi* Snethl. Lower Amazons: Monte Alegre, Santarem, Cametá, Rio Jumauchim, etc.

(c) *P. bitorquatus sturmi* Natt. Right bank of the Rio Madeira from Borba to Calama, and Rio Machados.

[347. *Pteroglossus flavirostris mariae* Gould.

Pteroglossus Mariae Gould, *Monogr. Rhampast.* ed. 2. pl. 30 (1854.—"the woods clothing the sides of the Lower Amazons," errore! coll. Hauxwell—*Peruvian Amazons* substituted as type locality; cf. Hellmayr, *Nor. Zool.* xiv. p. 83).

P. flavirostris mariae Hellmayr, *Nor. Zool.* xiv. p. 397 (Humaytha).

Left bank: Humaytha (Hoffmanns).

For characters and range of *P. f. flavirostris* and *P. f. mariae* cf. *Nor. Zool.* xiv. 1907. p. 83. Lately, Miss Snethlage† has recorded the latter race from Ponto Alegre, Upper Purús, the most southerly locality as yet known.]

[348. *Pteroglossus inscriptus* Swains.

Pteroglossus inscriptus Swainson, *Zoolog. Illustr.* (1st ser.) ii. pl. 90 (1820-21.—"from the interior of Guyana," errore! we substitute *Pará*): Pelzelu, *l.c.* p. 236 (city of Mattogrosso, Forte do Principe, Rio Guaporé; Borba, Rio Madeira).

Right bank: Borba (Natterer).

Specimens from the Madeira district in the Munich Museum, Natterer coll., agree with a good series from Pará and Maranhão excepting that the black stripe across the sides of the upper mandible immediately preceding the yellow basal lamella is perhaps slightly broader. In the principal character, viz. the greater portion of the lower mandible being yellow, they are exactly like Pará examples. *P. inscriptus* has evidently a wide range in Amazonia, south of the main valley of the Amazons. It is not uncommon in the vicinity of Pará, where Natterer,

* *Pteroglossus reichenowi* Snethlage, *Ornith. Monatsber.* xv. p. 195 (1907.—Monte Alegre).—I am indebted to Count Berlepsch for the loan of a fine specimen secured by Miss Snethlage on the Rio Jumauchim, an eastern confluent of the Rio Tapajós. This race principally differs by the absence of the yellow jugular band.

† *Journ. f. Ornith.* 1908. p. 20.

Wallace, and others have met with it. Schwanda forwarded a good series from Miritiba, Maranhão, to the Munich Museum. Miss Snethlage found it at Arumathena, R. Tocantins,* and the late Mr. Hoffmanns obtained an adult male near Itaituba, R. Tapajóz.† The great Austrian naturalist J. Natterer secured specimens at Borba, on the right bank of the Madeira, as well as at Forte do Príncipe da Beira and near the city of Mattogrosso, on the Rio Guaporé.]

349. *Pteroglossus humboldti* Wagl.

Pteroglossus Humboldti Wagler, *Syst. Ar.* Genus *Pteroglossus*, sp. 4 (1827.—"Brasília"—Mus. Monac.—descr. ♂ ad.).

No. 323. ♂ ad., Calama, 3. viii. 1907.—Wing 127; tail 155; bill 95 mm.

"Iris red, feet green, upper mandible yellow, culminal stripe, narrow basal line and teeth black, lower mandible black excepting the yellow basal lamella."

In coloration this bird is practically identical with Wagler's type in the Munich Museum, but slightly smaller (type: wing 132; tail 157; bill 104 mm). From *P. inscriptus* the two specimens differ in larger size‡ and much longer bill, with the lower mandible almost wholly black. It is very strange to find *P. humboldti* in the same region where Natterer had met with *P. inscriptus*, for we had always looked upon them as geographical representatives. *P. humboldti* is widely distributed in Upper Amazonia from Eastern Ecuador down to Peru and W. Brazil (Rio Purús, etc.). Calama is the most easterly locality as yet on record.

350. *Pteroglossus beauharnaesii* Wagl.

Pteroglossus Beauharnaesii Wagler, *Isis* 1832. p. 280 (1832.—"Brasília, prov. Pará"—type now in Munich Museum); Hellmayr, *Nor. Zool.* xiv. p. 399 (Humaytha).

Nos. 461, 464. ♀♀ ad., Calama, 26. viii. 1907.—Wing 140, 142; tail 166; bill 109, 97 mm.

Nos. 582, 590. ♀♀ ad., Jamarysinho, 22, 25. ix. 1907.—Wing 146, 150; tail 175, 177; bill 108 mm.

"Iris dark red or brownish red, feet greenish, bill: upper mandible red and pale green, lower one dingy white, tip of both clear yellowish red. Bare space round the eye pale blue."

The specimens differ from the type and other Upper Amazonian skins by the brown spots on the cheeks and throat being absent or but faintly indicated. However, this may be an individual character.

[351. *Selenidera maculirostris gouldii* (Natt.).

[*Pteroglossus maculirostris* Lichtenstein, *Verz. Dahl. Berliner Mus.* p. 7 (1823.—Brasil).]

P. Gouldii Natterer, *Proc. Zool. Soc. Lond.* v. 1837. p. 44 (1837.—Pará in Brazil); Pelzel, *l.c.* p. 238 (Borba).

Right bank: Borba (Natterer).

As already noticed by Pelzel, the two specimens obtained in the vicinity of Borba have slightly longer bills and the black blotch at the base of the upper mandible more restricted than typical Pará birds. The difference should be confirmed by additional material.

* *Journ. f. Ornith.* 1908, p. 536.

† Hellmayr, *Nor. Zool.* xiv. p. 26.

‡ Measurements of *P. inscriptus*:—

Three adult males . . . Wing 114–120; tail 134–137; bill 80–82 mm.

Five adult females . . . " 110–117; " 125–135; " 65–75 "

S. m. gouldii replaces *S. m. maculirostris* in Lower Amazonia. Its chief character consists of the large, continuous black patch occupying more than the basal half of the upper mandible, while in the South Brazilian race there are several distinctly separated transverse blotches in its stead.]

352. *Coccyzus melacoryphus* Vieill.

Coccyzus melacoryphus Vieillot, *Nouv. Diet.* viii. p. 271 (1817.—ex Azara : Paraguay).

Coccygus melanocoryphus Pelzeln, *l.c.* p. 273 (Borba).

No. 49. ♀ ad., Calama, 16. vi. 1907. "Iris dark brown, feet bluish black, bill black."—Wing 120; tail 141; bill 24 mm.

Exactly like specimens from Paraguay and Southern Brazil.

353. *Piaya cayana obscura* Sneathlage.

[*Caculus cayanus* Linnaeus, *Syst. Nat.* xii. 1. p. 170 (1766.—ex Brisson : Cayenne).]

Piaya cayana obscura Sneathlage, *Journ. f. Ornith.* 1908. p. 21 (Jan. 1908.—Bom Lugar, Rio Verde, upper Purús R., W. Brazil).

P. cayana Pelzeln, *l.c.* p. 272 (Borba).

No. 246. ♂ imm., Calama, 20. vii. 1907. "Iris clear red, feet light plumbeous, bill greyish green."—Wing 140; tail 238; bill 27 mm.

This bird answers well to the MS. description drawn up from the typical examples which had been forwarded for my inspection some years ago. *P. c. obscura* resembles, on the lower parts, the well-known *P. c. cayana*, of Cayenne, Guiana, Orinoco region, etc., but the upper surface is much duller, more walnut-brown, less chestnut. Specimens from the Rio Jurua* belong likewise to this form, which would appear to range over a considerable portion of Central Amazonia, though the exact limits of its area are not yet known.

Notwithstanding Mr. Stone's contention,† I am unwilling to unite *P. c. cabanisi* Allen, from Mattogrosso, to *P. c. pallescens* Cab & Heine, for birds from Chapada are much larger than a series from Minas and Bahia which I believe to represent *pallescens*.

[354. *Piaya melanogastra* (Vieill.).

Cuculus melanogaster Vieillot, *Nouv. Diet.* viii. p. 236 (1817.—"Java," errore ! hab. subst. *Cayenne* anct. Berl. & Hart.).

Piaya melanogaster Pelzeln, *l.c.* p. 273 (Borba).

Right bank : Borba (Natterer).]

355. *Neomorphus geoffroyi* (Temm.).

Coccyzus geoffroyi Temminck, *Rec. Pl. col.* livr. 2. pl. 7 (1820.—no locality; hab. subst. *Bahia*, East Brazil, anct. Hellm. *Nor. Zool.* xii. p. 298).

No. 31. ♀ ad., Calama, 12. vi. 1907.—Wing 162; tail 263; bill 43 mm.

No. 1034. ♂ ad., Marnins, 18. vii. 1908.—Wing 164; tail 260; bill 40 mm.

Nos. 896, 1012. ♀♀, Marnins, 1. vi., 13. vii. 1908.—Wing 158, 162; tail 258, 265; bill 41, 42 mm.

"Iris yellow, feet grey, bill pale grey or greenish."

* *P. cayana cabanisi* (nec Allen) Ihering, *Revis. Mus. Paul.* vi. p. 442.

† *Proc. Acad. N. Sci. Philad.* lx. part 3. publ. Jan. 1909. p. 503.

These specimens agree in every respect with another from Pará. I suspect that both *N. pucherani* (Deville), of Eastern Peru, and *N. salvini* Sel., of Central America, will prove to be geographical representatives of the present species, but have not yet met with either of them.

[356. *Tapera naevia* (Linn.).

Cuculus merens Linnaeus, *Syst. Nat.* xii. l. p. 170 (1766.—ex Brisson : Cayenne).

Diplopterus nareius Pelzeln, *l.c.* p. 271 (Borba).

Rio Madeira : Borba (Natterer).]

[357. *Dromococcyx phasianellus phasianellus* (Spix).

Macropus phasianellus Spix, *Ar. Bras.* i. p. 53, pl. xlii. (1824.—Tonantius, Rio Solimões).

Dromococcyx phasianellus Pelzeln, *l.c.* p. 270 (Borba) ; Hellmayr, *Nov. Zool.* xiv. p. 398 (Borba).

Right bank : Borba (Natterer, Hoffmanns).

Widely distributed in Brazil from S. Paulo, Mattogrosso, and Bahia north to the Amazons. In Venezuela, (Colombia?) and Central America it is replaced by a larger race, *D. phasianellus mexicanus* Bonap. Cf. my remarks in *Abhandl. Bayer. Akad. Wissensch.* II. Kl. xxii. 3. p. 600.]

358. *Ara ararauna* (Linn.).

Psittacus Araramua Linnaeus, *Syst. Nat.* x. p. 96 (1758.—ex Aldrovandi, Maregrave, etc. : "in America meridionali").

Sittace ararauna Pelzeln, *l.c.* p. 255 (Borba).

Nos. —. Ad., Calama, 7. ix. 1907. "Iris pale yellow, feet and bill black, bare skin on face whitish."

359. *Ara macao* (Linn.).

Psittacus Macao Linnaeus, *Syst. Nat.* x. p. 96 (1758.—ex Aldrovandi, Edwards, etc. : "in America meridionali").

Sittace macao Pelzeln, *l.c.* p. 254 (Bananeira, Ribeirão, Borba).

Ara macao Hellmayr, *Nov. Zool.* xiv. p. 405 (Humaytha).

Nos. — —. ♂♂ ad., Calama, 15. vii., 30. viii. 1907. "Iris white, feet black, upper mandible whitish with tip and base of tomiae black, lower mandible black."

360. *Ara severa* (Linn.).

Psittacus severus Linnaeus, *Syst. Nat.* x. p. 97 (1758.—"in Indiis," errore! we substitute *Sarinam* as type locality).

Nos. 240, 241, 487, 511. ♂♂ ♀♀, Calama, 19. vii., 30. viii., 7. ix. 1907. "Iris yellow, feet and bill black, naked face pale grey."

The specimens agree with others from Cayenne and Venezuela (Canra), the under surface of both remiges and rectrices being bright red.

[361. *Ara manilata* (Bodd.).

Psittacus manilatus Boddaert, *Tabl. Pl. enl.* p. 52 (1783.—ex D'Aubenton, *Pl. enl.* 864 : Cayenne).

Sittace macarautana Pelzeln, *l.c.* p. 255 (Borba).

Borba (Natterer). Widely distributed in Amazonia and in the Guianas.]

362. *Conurus weddellii* Deville.

Conurus Weddellii Deville, *Rev. Mag. Zool.* (2) iii. p. 209 (1851).—"Pébas, sur le Haut-Amazone";
 Hellmayr, *Nor. Zool.* xiv. p. 404 (Humaytha).
C. canihuecalis Rothschild, *Bull. B. O. C.* xix. p. 48 (1907.—Humaytha).

No. 236. ♂ imm., Calama, 17. vii. 1907.—Wing 130; tail 115 mm.

Nos. 648, 569. ♀♀ ad., Jamarysinho, 18. ix. 1907; S. Isabel, Rio Preto, 8. x. 1907.—Wing 140, 142; tail 118 mm.

No. 1068. ♂ ad., Manicoré (Las Onças), 24. viii. 1908.—Wing 140; tail 115 mm.

"Iris dingy white or grey, feet and bill black."

Natterer obtained this species at the sugar-mill of Captain Gama, on the Rio Gnaporé.*

363. *Conurus leucophthalmus* (P. L. S. Müll.).

Psittacus leucophthalmus P. L. S. Müller, *Natursyst.* Suppl. p. 75 (1776.—ex D'Aubenton, Pl. enl. 407: Cayenne).

Conurus pavua Pelzeln, *l.c.* p. 256 (Borba).

No. 1066. ♀ ad., Manicoré (Las Onças), 21. viii. 1908.—Wing 169; tail 161 mm.

"Iris clear brown, feet grey, bill pale grey."

No red patches on the cheeks. Agrees with Cayenne and Paraguay examples. Cf. my remarks in *Nor. Zool.* xiv. p. 85.

[364. *Conurus aureus* (Gm.).

Psittacus aureus Gmelin, *Syst. Nat.* 1. i. p. 329 (1788.—ex Brisson: ex Edwards, *Glean.* v. pl. 235: "supposed to be a native of Brazil").

Conurus aureus Hellmayr, *Nor. Zool.* xiv. p. 404 (Humaytha).

Left bank: Humaytha (Hoffmanns).

Widely distributed in Brazil south of the Amazon valley, from Mexiana and Maranhão to Bahia and Northern S. Paulo, but, as far as I know, not yet recorded from any locality west of the Madeira basin.]

365. *Pyrhura picta amazonum* Hellm.

[*Psittacus pictus* P. L. S. Muller, *Natursyst.* Suppl. p. 75 (1776.—ex D'Aubenton, Pl. enl. 144: Cayenne).]

Pyrhura picta amazonum Hellmayr, *Bull. B. O. C.* xix. p. 8 (1906.—Obidos, Lower Amazons);
 idem, *Nor. Zool.* xiv. 1907. pp. 36, 37 (Obidos, Santarem).

Conurus Luciani (nec Deville) Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 259 (Ribeirão, Salto Theotonio).

C. roseifrons (nec Gray) Allen, *Bull. Essex Inst.* viii. 1876. p. 81 (Santarem).

Pyrhura luciani Ihering & Ihering, *Cat. Fauna Brazil.* i. 1907. p. 115 (part.: Santarem); *Snethlage, Journ. f. Ornith.* 1908. p. 537 (Arumatheua, Tocantins).

P. picta luciani (errore!) Hellmayr, *Nor. Zool.* xiv. 1907. p. 404 (Humaytha).

Nos. 512, 514, 515, 516, 517, 518, 519. ♂♂, ♀♀ ad. et imm., Calama, 4, 6. ix. 1907.—Wing 124—127; tail 105—115; bill 17—19 mm.

No. 812. ♂ juv., Allianca, 10. xii. 1907.—Wing 122; bill 16 mm.

No. 1063. Imm., S. Vicente, Rio Machados, 1. viii. 1908.—Wing 120; tail 107; bill 17 mm.

Nos. 949, 1000—1004, 1037, 1038. ♂♂, ♀♀ ad. et imm., Marauis, 27. vi. 12, 19. vii. 1908.—Wing 120—128; tail 102—117; bill 17—18 mm.

"Iris brown, feet and bill black."

* Pelzeln, *Zur Orn. Bras.* iii. p. 258.

The splendid series now forwarded by Mr. Hoffmanns, comprising both adult and young birds, shows that I was mistaken in identifying his single Humaytha specimen and Natterer's skins as belonging to *P. p. lucianii* (Nov. Zool. xiv. p. 404). But as all the examples I then had before me were quite young this error is certainly pardonable. On re-examination and comparison with the fresh material I find that they are unquestionably young birds of *P. p. amazonum*. The latter are **not always** distinguishable from the corresponding stage of *P. p. lucianii*, but, as a rule, they have much more blue on the forehead, and brighter, more golden buff ear-coverts. Adults are of course easily recognizable by having no crimson whatever on the forehead, this being replaced by a rather narrow, dull bluish band, etc., etc. Cf. Nov. Zool. xiv. pp. 36-7.

Miss Snethlage (*in litt.*) informs me that the specimen from Arumathena recorded s.n. *P. luciani* is likewise referable to *P. p. amazonum*.

The range of *P. p. amazonum* is thus as follows:—

Arumathena, Tocantins (Snethlage); Lower Amazons: Obidos (Hoffmanns), Santarem (Linden, Garbe); Rio Madeira: Calama, Allianca, Humaytha (Hoffmanns), Ribeirão, Salto Theotonio (Natterer), Marnins and S. Vicente, Rio Machados (Hoffmanns).

366. *Pyrrhura rhodogaster* (Sch.).

Corvus rhodogaster (Natterer MS.) Selater, *Proc. Zool. Soc. Lond.* 1864. p. 298. pl. xxiv. (1864.—Borba, Rio Madeira); Pelzeln, *l.c.* p. 260 (Borba).

No. 948. ♂ ad., Marnins, 27. vi. 1903. "Iris brown, feet and bill black."—Wing 139; tail 121; bill 20 mm. [Munich Museum.]

This is the first specimen taken since Natterer's time, who discovered this beautiful Parrot at Borba, farther down the river, in 1829. Like *Brotogeris chrysosoma*, to be mentioned hereafter, *P. rhodogaster* is peculiar to the Madeira district, the only ascertained localities being Borba and Marnins.

P. rhodogaster is most nearly allied to *P. perlata* (Spix), from Pará and Maranhão, but, besides being larger in all dimensions, differs markedly in coloration. The sides of the chest, the lower breast, as well as the middle of the abdomen, are bright red (instead of green); the cheeks and malar region olive-yellowish (instead of dull blue, passing into greenish anteriorly); the upper wing-coverts, scapulars, inner secondaries, and the flanks dull bluish (instead of bright green). The head above, tail, foreneck and chest, etc., are alike in the two species.

[367. *Psittacula modesta modesta* (Cah.)

Psittacula modesta Cabanis in Schomburgk, *Reisen Brit. Guiana* iii. p. 727 (1848.—British Guiana; descr. ♀); Allen, *Auk* xx. 1903. p. 213 (Saramaca River, Dutch Guiana; crit.).

P. sclateri (nec Gray) Pelzeln, *l.c.* p. 268 (Cachoeira das Pederneiras, Rio Madeira; Marabitanas, upper Rio Negro); Salvadori, *Cat. Birds Brit. Mus.* xx. 1891. p. 244 (part.; specimen q ex Oyapoc, Cayenne); Berlepsch & Hartert, *Nov. Zool.* ix. 1902. p. 108 (La Union, Caura, Venezuela).

Upper Madeira: Pederneiras (Natterer).

Through the good offices of Dr. Reichenow I have received for examination the type of *P. modesta* from the Berlin Museum, and found it to be an adult female (without blue on the rump) of the species commonly called *P. sclateri*. The stout, strong bill with the dusky upper mandible, the broad, well-defined, yellowish frontal band, and the clear yellow (not green) throat and sides of the

head prove at first sight its distinctness from *P. guianensis* Sws., which is likewise an inhabitant of British Guiana. Dr. Allen (*l.c.*) has pointed out that a Guiana specimen (*modesta*) differed from another obtained on the Rio Javarri (*selateri*) "in being of a lighter, more yellowish green below, particularly on the breast. . . ." Examples from Oyapoe (Cayenne), La Union, Caura (Venezuela), Pederneiras (Rio Madeira), and the upper Rio Negro (Marabitanas) are exactly similar to the type of *modesta*, while a series from the Rio Napo, Sarayaçu (Ucayali, Peru), Iquitos, Rio Javarri (type of *selateri*), and Cosnipata (S.E. Peru) differ in darker and greener general coloration, particularly of the under parts, and darker blue rump of the males. Some of the Iquitos specimens are intermediate; but considered as a whole, the two series may easily be told apart. The range of the two races is as follows:—

(a) *P. modesta modesta* Cab.

French Guiana: Oyapoe (Mus. Brit.); Dutch Guiana: Saramaca River (Young); Brit. Guiana (Schomburgk). East Venezuela: La Union, Caura R. (André). North Brazil: Marabitanas, upper Rio Negro; Pederneiras, Rio Madeira (Natterer).

Material: 1 ♀ ad., Brit. Guiana (*type*), Berlin Museum; 1 ♀ ad., Oyapoe, Cayenne, Brit. Mus. (typical Cayenne make!); 1 ♂, 1 ♀, Marabitanas, 1 ♂ ad., Pederneiras, Vienna Museum; 1 ♂ ad., La Union, Caura, in Tring Museum.

(b) *P. modesta selateri* G. R. Gray.

Psittacula Selateri Gray, *List Birds Brit. Mus.* 3. ii. *Psitt.* p. 86 (1859.—Rio Javarri).

S.E. Peru: Cosnipata (Whitely). Eastern Peru: Rio Javarri (Bates), Iquitos (Whitely), Sarayaçu, Ucayali (Bartlett). Eastern Ecuador: Rio Napo (W. Jameson).

Material: 3 ♂♂ ad., 1 ♀, Rio Napo, Mus. Brit. and Tring; 1 ♂ ad., Rio Javarri (*type*), Brit. Mus.; 2 ♂♂, Iquitos, 1 ♂, 1 ♀, Cosnipata, 1 ♀, Sarayaçu, in Brit. Mus.]

368. *Brotogeris sanctithomae* (P. L. S. Müll.).

Psittacus st. thomae P. L. S. Müller, *Natursyst.* Suppl. p. 81 (1776.—ex D'Aubenton, Pl. enl. 456.

fig. 1: "Insel St. Thomae," errore! We substitute *Brazilian Amazonas* as type locality).

Brotogerys tui Pelzeln, *l.c.* p. 261 (Guajaraguaçu, Borba).

B. sanctithomae Hellmayr, *Nov. Zool.* xiv. p. 405 (Humaytba, Paraiso).

Nos. 541, 543, 544. ♂, ♀♀ ad., Jamarysinho, 12. ix. 1907.—Wing 109—105; tail 63—60; bill 15—14 mm.

Nos. 813, 814, 822. ♂ ad., ♀♀, Marmellos, 15, 17. xii. 1907.—Wing 107—103; tail 59—56; bill 16—15½ mm.

"Iris grey, feet yellowish or reddish grey, bill brown."

Agreeing with Peruvian examples. In none of them is there a yellow streak behind the eye.

369. *Brotogeris chrysosema* Schl.

Brotogerys chrysosema (ex Natterer MS.) Selater, *Proc. Zool. Soc. Lond.* 1864. p. 298 (1864.—"in Brasilia (Natt.)," sc. Rio Madeira); Pelzeln, *Zur Ornith. Bras.* iii. 1869. p. 261 (Rio Madeira, Cachoeira das Pederneiras).

No. 727. ♂ ad., Calama, 25. ix. 1907.—Wing 123; tail 70; bill 24 mm.

No. 373. ♀ ad., Calama, 12. viii. 1907.—Wing 120; tail 66; bill 22 mm.

No. 1018. ♂ ad., Maruins, Rio Machados, 15. vii. 1908.—Wing 120; tail 70; bill 24 mm.

No. 1062. ♂ ad., S. Vicente, Falls of the Rio Machados, l. viii. 1908.—Wing 121; tail 66; bill 23 mm.

"Iris brown or dark brown, feet and bill yellowish grey."

This species had never been met with since Natterer's time, who obtained ten specimens in the same district many years ago. *B. chrysosoma* is most nearly allied to *B. tuipara* (Gm.), but differs at a glance by having the greater upper wing-coverts golden yellow instead of orange. Moreover, the reddish frontal edge is of a clearer, more orange tint, the orange-red chin-spot rather larger, and the wings are somewhat longer. The other differences mentioned by Dr. Schläter—viz. the more yellowish green colour of the plumage and more bluish crown—are not borne out by Mr. Hoffmann's series. The couple from Calama show but a very narrow reddish frontal edge, while in the two Machados birds it is fully as broad as in *B. tuipara*. In the males the crown (as far back as the posterior margin of the eye) is more or less washed with pale bluish, whereas the female has the top of the head nearly uniform green.

B. chrysosoma is very likely a geographical representative of *B. tuipara*. Up to the present time it is only known from the right bank of the Upper Madeira (Pederneras to Calama) and its tributary, the Rio Machados.

B. tuipara inhabits the Lower Amazons from Pará to Manaus. Mr. Hoffmann obtained it at Urucurituba, left bank of the Rio Tapajóz,* Miss Sneathlage at Arumathena, on the Tocantins.† The Munich Museum has lately received five specimens from Miritiba, Maranhão, through Mr. F. Schwanda.

370. *Amazona farinosa farinosa* (Bodd.).

Psittacus farinosus Boddaert, *Tabl. Pl. enl.* p. 52 (1783.—ex D'Aubenton, *Pl. enl.* 861: Cayenne).
Chrysotis farinosa Pelzeln, *l.c.* p. 266 (Borba).

No. 310. ♂ ad., Calama, 31. vii. 1907.—Wing 240; tail 140; bill 43 mm.

No. 194. (♀), Calama, 8. vii. 1907.—Wing 220; tail 125; bill 41 mm.

"Iris yellow (♂), brown (♀), feet black, bill grey."

The male has the crown uniform light green, while in the other example the forehead is slightly spotted with yellow. Of two adult males obtained by Natterer at Borba, one has a well-defined bright yellow patch on the anterior crown, the other has the upper part of the head uniform green. In another paper ‡ I have already alluded to the variability of this character, which appears to be purely individual, not geographical. The Madeira birds agree, in size and coloration, with a topotypical example from Cayenne and others from Pará.

Specimens from Chiriqui and Western Ecuador do not show the mealy appearance of the upper parts so conspicuous in eastern birds, and may, if this difference be found constant, be separated as *A. farinosa inornata* (Salvad.). §

[371. *Amazona amazonica* (Linn.).

Psittacus amazonicus Linnaeus, *Syst. Nat.* xii. 1. p. 147 (1766.—ex Brisson, Frisch, etc.: "Surinam," errore! We fix "le pays des Amazones" (ex Brisson) as type locality).
Chrysotis amazonica Pelzeln, *l.c.* p. 266 (Borba).

Right bank: Borba (Natterer).

This beautiful bird has a wide range in Eastern South America, being found

* Hellmayr, *Nor. Zool.* xiv. 1907, p. 28.

† Sneathlage, *Journ. f. Ornith.* 1908, p. 537.

‡ *Abhandl. Bayer. Akad. Wissensch. II. Kl.* xxii. 3. 1906, pp. 591-2.

§ *Chrysotis inornata* Salvadori, *Cat. Birds Brit Mus.* xx. p. 281 (1891.—Veragua).

from Trinidad and Guiana southwards to Rio de Janeiro. Cf. *Abhandl. Bayer. Akad. Wissensch. II. Kl. xxii. 3. p. 594.*]

[372. **Amazona nattereri** (Finsch).

Psittacus (Chrysotis) Nattereri Finsch, *Jouru. f. Ornith.* xii. p. 411 (1864.—Cachoeira do Bananeira, Rio Mamoré).

Chrysotis Nattereri Pelzeln, *l.c.* p. 266 (Rio Mamoré, Bananeira).

Upper Madeira : Bananeira on the Rio Mamoré (Natterer), September 1823.

The type (an adult male) in the Vienna Museum is still the only known specimen. *A. nattereri* is by no means related to *A. farinosa*, with which Dr. Finsch compared it in the original description, but belongs to the group of *A. aestiva* (Linn.) and *A. ochrocephala* (Gm.), as I have pointed out in *Abhandl. Bayer. Akad. Wissensch. II. Kl. xxii. 3. p. 593*. It resembles these two species in having the edge of the wing and a large wing-speculum bright red, and the base of the inner web of the outer rectrices pale red, but differs from *A. ochrocephala*, with which it agrees in the absence of yellow on the sides of the head, by having a broad, bluish frontal band (instead of a narrow, green edge), and by the sides of the head, throat, and under parts being decidedly bluish green (not pure green or yellowish green). The type measures : wing 122 ; tail 140 ; bill 31 mm.

I have given (*l.c.*) an analytical key, which, I hope, will enable ornithologists to distinguish *A. nattereri* from its allies. Although the type is slightly albinistic, I think there can be no doubt that it represents a perfectly distinct form.]

373. **Amazona festiva** (Linn.).

Psittacus festivus Linnaeus, *Syst. Nat.* x. p. 101 (1758.—“in Indiis,” errore! We fix as type locality the “Brazilian Amazons”; cf. *Abhandl. Bayer. Akad. Wissensch. II. Kl. xxii. 3. p. 592*).

Chrysotis festiva Pelzeln, *l.c.* p. 265 (Borba).

Nos. 381, 506. ♂ ♀ ad., Calama, 12. viii., 2. ix. 1907.—Wing 210 ; tail 110, 108 ; bill 38 mm. “Iris yellow or red, feet and bill grey.”

This bird has a rather restricted range in Amazonia, and is not very common in collections. Natterer obtained specimens on the upper Rio Branco, in the Rio Negro district, and near Borba. It also occurs in Eastern Peru, and possibly in Guiana.

374. **Graydidascalus brachyurus** (Kuhl).

Psittacus brachyurus Kuhl, *Consp. Psitt.* p. 72 (1820.—“Cajana”).

Pionius brachyurus Pelzeln, *l.c.* p. 262 (Borba).

No. 432. ♂ ad., Calama, 20. viii. 1907.—“Iris yellowish red, feet grey, bill blackish green.”—Wing 148 ; tail 58 ; bill 27 mm.

Slightly larger than a specimen from Manaus, but not otherwise different. Its reported occurrence in Cayenne appears to be open to doubt.

375. **Pionus menstruus menstruus** (Linn.).

Psittacus menstruus Linnaeus, *Syst. Nat.* xii. 1. p. 148 (1766.—ex Edwards—hab. ign.—et Brisson : “Guiane,” se. Cayenne).

Nos. 123, 276, 473, 486, 493, 494, 496, 505. ♂ ♂, ♀ ♀, Calama, 28. vi., 27. vii., 27, 30, 31. viii., 1. ix. 1907.—Wing 185—200 mm.

Nos. 416. ♂ ad., Calama, island of Sta. Barba, 18. viii. 1907.—Wing 190 mm.

Nos. 537, 592. ♂ ad., Jamarysiubo, 11, 26. ix. 1907.—Wing 193, 180 mm.

"Iris brown, feet and bill dark grey or black, a large patch at the base of the upper mandible near its lower edge red."

Identical with specimens from Guiana, Venezuela, Eastern Ecuador, etc.

[376. **Pionus fuscus** (P. L. S. Müll.).

Psittacus fuscus P. L. S. Müller, *Natursyst.* Suppl. p. 78 (1776.—ex Edwards, *Glean.* vii. pl. 315, and D'Aubenton, Pl. enl. 408; Cayenne).

Pionius violaceus Pelzeln, *l.c.* p. 264 (Borba).

Right bank: Borba (Natterer).

Specimens from Borba, Pará, and Manaus do not differ from Guianan ones.]

377. **Pionopsitta barrabandi** (Kuhl).

Psittacus Barrabandi Kuhl, *Consp. Psitt.* p. 61 (1820.—"Brasília").

Pionias Barrabandi Pelzeln, *l.c.* p. 262 (Salto do Girao).

No. 318. ♀ ad., Calama, 1. viii. 1907.—Wing 163; tail 71; bill 23 mm.

No. 1061. ♂ ad., S. Vicente, Rio Machados, 1. viii. 1908.—Wing 166; tail 77; bill 24 mm.

"Iris brown, feet dark grey, bill blackish."

These birds differ from two others from North Brazil by having the cheeks and thighs much more deeply coloured, bright reddish orange. A series from various localities is required to show whether this divergency is individual or geographical. Natterer procured specimens at Salto do Girao, higher up the Rio Madeira, as well as in several places on the upper Rio Negro.

[378. **Gypopsitta vulturina** (Kuhl).

Psittacus vulturinus (Illiger MS.) Kuhl, *Consp. Psitt.* p. 62 (1820.—"Brasília").

Pionias vulturinus Pelzeln, *l.c.* p. 262 (Borba).

Right bank: Borba (Natterer).

This singular bird has a very limited range,* being hitherto only known from the Pará district, where Wallace and Robert secured several examples, and from Borba, on the Lower Madeira, whence Natterer forwarded two specimens to the Vienna Museum. In coloration it exactly resembles *P. barrabandi*, but may be recognized by its naked head, bordered posteriorly by a broad, light yellow band.]

[379. **Pionites leucogaster xanthomerus** (Sch.).

[*Psittacus leucogaster* (Illiger MS.) Kuhl, *Consp. Psitt.* p. 70 (1820.—"Brasília," sc. Pará).]

Caica xanthomeria (G. R. Gray MS.) Selater, *Proc. Zool. Soc. Lond.* xxv. 1857. p. 236 (Jan. 1858.—Rio Javarri).

Pionias xanthomerus Pelzeln, *l.c.* p. 263 (Rio Machados).

Rio Machados (Natterer).

Besides the types in the British Museum, I have examined Natterer's two skins at Vienna, an adult male from the Rio Juruá in Mus. Berlepsch, and a male from Tefié at Tring. Cf. *Nov. Zool.* xiv. p. 89.]

* *G. vulturinus* apud Berl. & Hart., *Nov. Zool.* ix. 1902. p. 110 (Caura, Venezuela), refers to *Derophtus a. accipitrinus* (Linn.). I have examined the specimens in the Tring Museum.

[380. *Gypagus papa* (Linn.).

Fultur Papa Linnaeus, *Syst. Nat.* x. p. 83 (1758.—ex Edwards & Albin : "India occidentalis," errore! hab. substit. Surinam, aut. Berlepsch).
Sarcorhamphus papa Pelzeln, *l.c.* i. 1867. p. 1 (Borba).

Borba (Natterer).]

381. *Ibycter ater* (Vieill.).

Daptrius ater Vieillot, *Analyse Ornith. élém.* p. 68 (1816.—"le Brésil").
Ibycter ater Hellmayr, *Nor. Zool.* xiv. p. 405 (Borba).

No. 389. ♂ ad., Calama, 13. viii. 1907. "Iris brown, feet yellow, bill black, cere and bare skin of the face bright yellow."

Widely distributed in Amazonia.

[382. *Ibycter americanus* (Bodl.).

Falco americanus Boddaert, *Tabl. Pl. enl.* p. 25 (1783. — ex D'Aubenton, *Pl. enl.* 417 : Cayenne).
Ibycter americanus Pelzeln, *l.c.* p. 2 (Borba).

Right bank : Borba (Natterer). This species has a wide range in tropical South America.]

[383. *Micrastur brachypterus* (Temm.).

Falco brachypterus Temminck, *Rec. Pl. col.* pls. 116 (juv.), 141 (adult) (1822.—"au Brésil, à la Guyane, et au Paraguay").
Micrastur brachypterus Pelzeln, *l.c.* p. 7 (Borba) ; Hellmayr, *Nor. Zool.* xiv. p. 405 (Borba).

Right bank : Borba (Natterer, Hoffmannus).]

384. *Micrastur mirandollei* (Schlegel).

Asur Mirandollei Schlegel, *Nederl. Tijdschr. Dierk.* i. p. 130 (1863.—Surinam).

No. 775. ♀ ad., Allianca, 11. xi. 1907.—Wing 265 ; tail 200 ; tarsus 55 ; bill (from cere) 24 mm.

"Iris and feet yellow, bill black."

This bird, evidently a very old female, differs from an adult male procured near Pará, in November 1834, by Natterer (one of the types of *M. macrorhynchus* Pelz.*), in the following particulars : the top and sides of the head are black (instead of slate-grey like the back) ; the feathers of the sides of the body are uniform white, showing no trace of the dusky shaft-lines so conspicuous a feature in the Pará specimen ; the light cross-bands of the tail are greyish ash (instead of sepia-brown) ; the lower mandible is black, not yellow. Otherwise the two examples are very similar, except that the Allianca bird, being a female, is decidedly larger.† In both the lower surface, from the chin to the under tail-coverts, is uniform white.

M. mirandollei is new to the fauna of the Rio Madeira, but it had been obtained at Chyavetas, in Northern Peru, by E. Bartlett,‡ and in various localities in North Brazil by J. Natterer.

* *Reise der Norara, Vögel*, p. 11 (1865.—Barra do Rio Negro ; S. Maria do Rio Branco ; Pará).

† Natterer's specimen measures : wing 234 ; tail 194 mm.

‡ Selater & Salvin, *Proc. Zool. Soc. Lond.* 1867. pp. 753, 759.

385. *Micrastur gilvicollis* (Vieill.).

Sparvius gilvicollis Vieillot, *Nour. Dict.* x, p. 323 (1817.—loc. ign.: we substitute *Cayenne*: type in Paris Museum examined).

Micrastur gilvicollis Pelzeln, *l.c.* p. 7 (Borba); Hellmayr, *Nor. Zool.* xiv. p. 405 (Borba).

No. 624. ♂ ad., S. Isabel, Rio Preto, 4. x. 1907.—Wing 176; tail 163 mm.

"Iris and feet yellow, bill black, base of lower mandible, cere, and bare space round the eye yellow."

This bird combines the proportion of the toes (outer decidedly longer than inner) of *M. pelzelni* Ridgw.* with the unbarred, uniform white abdomen of *M. gilvicollis*. Another (immature) specimen, secured by Mr. Hoffmanns on his first journey to the Madeira district, is, however, typical of *gilvicollis*. I am sorry to say that, after examining large series of these birds, I am unable to distinguish between *M. gilvicollis* and *M. pelzelni*. The differences put forward by Mr. Ridgway in his "Monograph of the Genus *Micrastur*,"† the most comprehensive and elaborate paper ever published on these puzzling birds, are evidently individual variations of the same species. This is conclusively proved by a series of twelve adults from British Guiana (Qunonja, Bartica Grove, Camacusa, River Carimagua; H. Whitely, jun., coll.) in the British Museum. Six specimens have the inner and outer toes nearly of equal length, a feature claimed by Ridgway for *M. concentricus* (= *gilvicollis* Vieill.). In two of them the lower breast, abdomen, and under tail-coverts are unbarred white, in three others (♂ Camacusa, ♂ ♀ Bartica Grove) the latter show more or less distinct dusky cross-lines, while a female from Qunonja has all the under parts (except throat) regularly and even more broadly banded with blackish than the type of *M. pelzelni*. The six other examples have the outer toe decidedly longer than the inner one ("pelzelni"); the amount of dusky barring on the belly presents the same variation as described above. It must be admitted that the type of *M. pelzelni* (♂ ad., Sarayaçu, Ucayali, Eastern Peru: E. Bartlett coll., August 2, 1865: Brit. Mus.) has the throat slightly greyer, but other Peruvian skins, particularly an adult male from Iquitos, do not differ in this respect from the Guianan series, some of which are, besides, decidedly intermediate in the proportion of the lateral toes.

[386. *Dinospizias pectoralis* (Bonap.).

Astur pectoralis Bonaparte, *Rev. Mag. Zool.* (2) ii. p. 490 (1850.—"Brésil"); Pelzeln, *l.c.* p. 6 (Borba).

Right bank: Borba (Natterer).

This remarkable species seems to me generically distinct from any of the American Accipiters. Natterer, besides one at Borba, obtained two examples in the vicinity of Ypanema, S. Paulo. Ender forwarded a single adult male from Cantagallo, prov. Rio de Janeiro, to the Berlin Museum,‡ and Count Berlepsch possesses a Bahia skin. Although very rare in collections, it appears to be rather widely distributed in Brazil.]

387. *Accipiter superciliosus* (Linn.).

Fulco superciliosus Linnaeus, *Syst. Nat.* xii. 1. p. 128 (1766.—Surinam: juv.).

Accipiter tinus auct.

No. 943. ♀ imm., Maruins, 22. vi. 1908. "Iris and feet yellow, bill black."—Wing 135; tail 98 mm.

* *Proc. Acad. Nat. Sci. Philad.* 1875. p. 494 (Sarayaçu, Upper Ucayali, E. Peru).

† *Proc. Acad. Nat. Sci. Philad.* 1875. pp. 470-502.

‡ Cabanis, *Journ. f. Ornith.* 1874. p. 228.

I agree with Mr. Ridgway* that there is no reason for rejecting Linnaeus' name, which is accompanied by a much better description than Latham's generally accepted term *tinus*.†

A. superciliosus has a wide range in tropical South America.

[388. ***Asturina nitida nitida*** (Lath.).

Falco nitidus Latham, *Ind. Orn.* i. p. 41 (1790.—Cayenne).

Asturina nitida Pelzeln, *l.c.* p. 3 (Borba).

Right bank : Borba (Natterer).

Generally distributed over tropical South America from Southern Brazil north to Guiana and Panama.]

389. ***Rupornis magnirostris magnirostris*** (Gm.).

Falco magnirostris Gmelin, *Syst. Nat.* 1. i. p. 232 (1788.—ex D'Aubenton, Pl. enl. 461 : Cayenne).

Astur macrorhynchus Pelzeln, *l.c.* p. 6 (Borba).

Rupornis m. magnirostris Hellmayr, *Nov. Zool.* xiv. p. 406 (Humaytha).

No. 510. ♀ ad., Calama, 3. ix. 1907.—Wing 225 ; tail 154 mm.

No. 882. ♀ ad., Marmellos (left bank), 29. xii. 1907.—Wing 223 ; tail 157 mm.

No. 327. ♀ juv., Calama, 2. viii. 1907.

"Iris and feet yellow, bill black, cere yellow."

The adult female from Calama is typical of *magnirostris*, agreeing perfectly with our large series from Cayenne and Venezuela (Canra). The chest is ashy, slightly tinged with pale fulvescent, and the cross-bars of the lower breast and belly are light rufescent brown. The Marmellos bird, on the other hand, is much more rufous underneath, the chest being bright cinnamon and the cross-bands of the belly and thighs being more deeply rufescent. It is practically identical with an adult bird from El Loreto, Rio Napo, Eastern Ecuador, in the Munich Museum, while other specimens from the same district closely resemble typical *magnirostris*. Two adult males from the Rio Purús, and an adult female from the Upper Ucayali, have similarly coloured under parts to those of the Marmellos example. Without additional material it is impossible to say whether these rufous specimens are merely intergrades between *magnirostris* and *nattereri* (from the latter of which they are not easily distinguishable) or represent a constant, peculiar race.

[390. ***Busarellus nigricollis*** (Lath.).

Falco nigricollis Latham, *Ind. Orn.* i. p. 35 (1790.—Cayana).

Busarellus nigricollis Hellmayr, *Nov. Zool.* xiv. p. 406 (Humaytha).

Left bank : Humaytha (Hoffmanns).]

[391. ***Urubitinga urubitinga*** (Gm.).

Falco urubitinga Gmelin, *Syst. Nat.* 1. i. p. 265 (1788.—ex Brisson · ex Marcgrave : Eastern Brazil).

Urubitinga brasiliensis Pelzeln, *l.c.* p. 2 (Cachoeira do Madeira, Borba).

Cachoeira do Madeira, Borba (Natterer).

Ranges all over tropical America from Paraguay to Costa Rica.]

* *Bull. U.S. Geol. and Geog. Surv. Terr. for April 1876.* ii. No. 2. p. 126.

† *Ind. Ornith.* i. 1790. p. 50 (Cayenne).

[392. *Leucopternis schistacea* (Sundev.).

Asturina schistacea Sarslevall, *Öfvers. Vetenskapsak. Förhandl.* vii. No. 5. p. 132. note 3 (1850.—"Brasilia").

Urubitinga schistacea Pelzeln, *l.c.* p. 2 (Borba).

Leucopternis schistacea Hellmayr, *Nor. Zool.* xiv. p. 406 (Humaytha).

Left bank : Humaytha (Hoffmanns); right bank : Borba (Natterer).

This is an exclusively Amazonian species. Natterer, in addition to the one from Borba, obtained a second specimen at Manãos; E. Bartlett secured several on the banks of the Ucayali, Peru; and the U.S. Museum of Washington possesses an adult male sent by J. Hauxwell from Pebas, Peru,* etc.]

[393. *Leucopternis albicollis* (Lath.).

Falco albicollis Latbam, *Ind. Orn.* p. 36 (1790.—Cayana).

Leucopternis albicollis Pelzeln, *l.c.* p. 3 (Bananeira, Borba).

Rio Madeira : Bananeira, Borba (Natterer).

This bird is only found in Amazonia, Guiana, and Trinidad.]

394. *Leucopternis kuhli* Bonap.

Leucopternis Kuhli Bonaparte, *Consp. Ar.* i. p. 19 (1849.—no locality).

L. superciliosus Pelzeln, *l.c.* p. 3 (Borba.)

No. 909. ♀ vix ad., Marnius, 5. vi. 1908. "Iris deep yellow, feet yellow, bill blackish, cere orange."—Wing 218; tail 152; bill (from the anterior edge of the cere) 25 mm.

This bird is not quite adult, some of the upper tail- and upper wing-coverts being narrowly fringed with rufescent.

L. kuhli is as yet only known from the vicinity of Pará, and from the right bank of the Rio Madeira (Borba, Maruins). Cf. *Nor. Zool.* xiii. 1906. pp. 382-3.

[395. *Thrasaëtus harpyia* (Linn.).

Vultur Harpyia Linnaeus, *Syst. Nat.* xii. 1. p. 121 (1766.—ex Hernandez & Marcgrave: Mexico).

Morphnus Harpyia Pelzeln, *l.c.* p. 4 (Borba).

Left bank : opposite Borba (Natterer).]

[396. *Spizaëtus tyrannus* (Wied).

Falco tyrannus Wied., *Reis. Brasil.* i. p. 360 (1820.—Quartel dos Arcos, Rio Belmonte, Bahia, East Brazil).

Spizaëtus Tyrannus Pelzeln, *l.c.* p. 4 (Borba).

Right bank : Borba (Natterer).]

[397. *Spizaëtus ornatus* (Daud.).

Falco ornatus Daudin, *Traité d'Orn.* ii. p. 77 (1800.—ex Levaillant : Cayenne).

Spizaëtus ornatus Pelzeln, *l.c.* p. 4 (Borba).

Right bank : Borba (Natterer).]

* Ridgway, *Bull. U.S. Geol. and Geol. Surv. Terr. for April 1876.* ii. No. 2. p. 172.

[398. *Herpetotheres cachinnans* (Linn.).

Falco cachinnans Linnaeus, *Syst. Nat.* x. p. 90 (1758.—ex Rolander: "America meridionalis," hab. subst. Surinam, auct. Berlepsch, *Nov. Zool.* xv. p. 290).
Herpetotheres cachinnans Pelzeln, *l.c.* p. 7 (Borba).

Right bank : Borba (Natterer).]

399. *Elanoides forficatus* (Linn.).

Falco forficatus Linnaeus, *Syst. Nat.* x. p. 89 (1758.—ex Catesby : Carolina).

Nos. 689, 690, 694. ♂♂ ad., S. Isabel, Rio Preto, 12, 14. x. 1907.—"Iris brown, feet dark grey, bill black."

This is a common winter visitor to Brazil. Natterer met with it near Pará and at various localities in S. Paulo.*

400. *Leptodon ucinatus* (Temm.).

Falco ucinatus Temminck, *Rev. Pl. col.* tab. 103, 104, 115 (1822.—"depuis les environs de Rio-de-Janeiro jusque vers le nord du Brésil et dans toute la Guiane").

No. 521. Juv. (not sexed), Calama, 7. ix. 1907.—Wing 285; tail 200 mm.
 "Iris bluish white, feet yellow, bill black."

Identical with specimens in corresponding plumage from Guiana, etc.

401. *Gampsonyx swainsonii* Vig.

Gampsonyx Swainsonii Vigors, *Zoolog. Journ.* ii. p. 69 (1825.—Bahia, Brazil).

No. 438. ♀ imm., Calama, 22. viii. 1907.—"Iris red, feet yellow, bill black."—Wing 165; tail 102 mm.

Not different from Venezuelan (Canra) specimens. This little Falcon has a wide range in Central and South America.

402. *Harpagus bidentatus* (Lath.).

Falco bidentatus Latham, *Indl. Orn.* i. p. 38 (1790.—"Cayana").

Harpagus bidentatus Pelzeln, *l.c.* p. 5 (Salto Girao, Borba).

No. 270. ♂ juv., Calama, 25. vii. 1907.—"Iris yellowish red, feet yellow, bill black."

This bird is in transition from the white-bellied juvenile plumage into the rufous-bellied of the adult. The thighs are buffy white.

403. *Ictinia plumbea* (Gm.).

Falco plumbeus Gmelin, *Syst. Nat.* 1. i. p. 283 (ex Latham : Cayenne).

Ictinia plumbea Hellmayr, *Nov. Zool.* xiv. p. 406 (Humaytha).

No. 358. ♂ ad., Calama, 9. viii. 1907.—Wing 280; tail 130 mm. "Iris red, feet yellow, bill black."

[404. *Lophotrix cristata* (Daud.).

Strix cristata Daudin, *Traité d'Orn.* ii. p. 207 (1800.—"Guiane" sc. Cayenne).

Bubo cristatus Pelzeln, *l.c.* p. 9 (Borba).

Right bank : Borba (Natterer).

Ranges from Guiana to Lower Amazonia and Eastern Ecuador.]

* Pelzeln, *Orn. Bras.* i. 1867. p. 6 : *Nauclerus furcatus*.

[405. *Otus* * *watsonii* (Cass.).

Ephialtes Watsonii Cassin, *Proc. Acad. Philad.* iv. p. 123 (Dec. 1848.—“South America”); *Journ. Acad. Philad.* ii. pt. ii, Jan. 1852. p. 95, tab. xii. fig. 1.

Pisorhina Watsonii Hellmayr, *Nor. Zool.* xiv. p. 407 (Humaytha).

Ephialtes atricapillus Pelzeln, *l.c.* p. 9 (part.: Engenho do Gama, Matogrosso, Rio Guaporé; Borba, Rio Madeira; Rio Negro).

Right bank: Borba (Natterer); left bank: Humaytha (Hoffmanns).

Dr. Lorenz has kindly sent me four of Natterer's specimens (♂ ad., Rio Negro, January 13, 1831; ♂ ♀ ad., Borba, July 1830; ♂ ad., Borba, March 1830). Two agree perfectly with Hoffmanns' skin from Humaytha and others from Eastern Ecuador, while a male from Borba is rather paler underneath. The fourth example (♂, Borba) is in the rufous phase. *O. watsonii* is perfectly distinct from *O. c. crucigerus*, as pointed out by me *l.c.*

S. atricapilla Temm.,† based upon a Nattererian skin from Rio, is evidently the same as *Scops sanctae-catarinae* Salv.,‡ over which name it has priority by many years.]

[406. *Otus choliba crucigera* (Spix).

[*Strix choliba* Vieillot, *Nour. Dict.* vii. p. 39 (1817.—ex Azara No. 48: Paraguay).]

Strix crucigera Spix, *Av. Bras.* i. p. 22. pl. ix. (1824.—“juxta flumen Amazonum”).

Ephialtes Choliba Pelzeln, *l.c.* p. 9 (Borba).

Borba (Natterer).

The single specimen in the Vienna Museum seems best to agree with the Amazonian race. Cf. *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. p. 575.]

[407. *Glaucidium brasilianum brasilianum* (Gm.).

Strix brasiliana Gmelin, *Syst. Nat.* i. i. p. 289 (1788.—ex Brisson: ex Marcgrave—Eastern Brazil).

Athene ferruginea Pelzeln, *l.c.* p. 9 (Borba).

Right bank: Borba (Natterer).]

[408. *Asio stygius* (Wagler).

Nyctalops stygius Wagler, *Isis* 1832. p. 1221 (1832.—“in Brasilia sive in Africa meridionali”—Mus. Eichstätt. The type, now in the Munich Museum, is marked “Brazil from the province Minas Gerais”).

Otus stygius Pelzeln, *l.c.* p. 10 (Borba).

Right bank: Borba (Natterer).

This singular species ranges throughout Brazil from the Rio Negro southwards to Rio Grande do Sul. Having never seen Cuban specimens, I cannot say whether they are really identical with the Brazilian ones.]

[409. *Syrnium superciliare* Pelz.

Syrnium superciliare Pelzeln, *Verhandl. Zool. Bot. Gesellsch. Wien* xiii. p. 1125 (1863.—City of Matogrosso, Rio Guaporé); Hellmayr, *Nor. Zool.* xiv. p. 407 (Borba).

Right bank: city of Matogrosso (Natterer), Borba (Hoffmanns).

Also recorded from Pará (Wallace).]

* *Otus* takes the place of *Pisorhina* and *Scops*. Cf. Allen, *Bull. Amer. Mus. N. York* xxiii. 1907. p. 334.

† *Strix atricapilla* Temminck, *Pl. col.* livr. 25. pl. 145 (1822.—“Brésil—Musée de Vienne”).

‡ Salvin, *Bull. B. O. C.* vi. p. xxxvii. (1897.—Southern Brazil).

410. *Pulsatrix perspicillata* (Lath.).

Strix perspicillata Latham, *Iad. Orn.* i. p. 58 (1790.—ex "Spectacle Owl" Latham, *Gen. Syn. Birds Suppl.* p. 50. tab. cvii. = juv. : Cayenne).

Pulsatrix perspicillata Hellmayr, *Nov. Zool.* xiv. p. 406 (Humaytha).

Athene torquata Pelzeln, *l.c.* p. 8 (Borba).

No. 1026. ♀ ad., Marnins, 19. vii. 1908. "Iris yellow, feet grey, bill greenish yellow."—Wing 320 ; tail 200 mm.

[411. *Ciccaba huhula huhula* (Dand.).

Strix huhula Daudin, *Traité d'Orn.* ii. p. 190 (1800.—ex Levaillant, *Ois. d' Afr.* i. pl. 41 : Cayenne).

Athene huhula Pelzeln, *l.c.* p. 8 (Borba).

Right bank : Borba (Natterer).

This specimen agrees well with others from Cayenne and Rio de Janeiro in the collection of the Munich Museum.]

[412. *Columba speciosa* Gm.

Columba speciosa Gmelin, *Syst. Nat.* 1. ii. p. 783 (1789.—ex D'Aubenton, *Pl. enl.* 213 : Cayenne).

Lepidocneus speciosa Pelzeln, *l.c.* p. 274 (Ribeirão).

Rio Madeira : Ribeirão (Natterer).

Ranges as far as Matto Grosso in the south, and to Pará in the east.]

413. *Columba rufina sylvestris* Vieill.

[*Columba rufina* Temminck & Knip, *Pigeons* i. fam. sec., p. 59. pl. 24 (1808-11.—"la Guyane française").]

C. sylvestris Vieillot, *Nouv. Dict.* xxvi. p. 366 (1818.—ex Azara, No. 319 : Paraguay) ; see Chubb, *Ibis* 1910. p. 59 (crit. & hab.).

No. 500. ♂ ad., Calama, 1. ix. 1907. "Iris yellow, feet red, bill black."—Wing 185 ; tail 105 ; bill 18 mm.

This bird agrees with South Brazilian skins in having the basal portion of the rectrices dull blackish, in decided contrast to the pale cinereous apical band, and the under tail-coverts light slate-grey. Mr. Chubb (*l.c.*) having ascertained that Paraguayan examples are the same as those from Brazil, there is no longer any doubt about the proper application of the name *sylvestris*. The dark-tailed form appears to range, in the north, as far as Pará and Mexiana Island, though I have not examined specimens from these places.

414. *Columba plumbea pallescens* Suethtl.

[*Columba plumbea* Vieillot, *Nouv. Dict.* xxvi. p. 358 (1818.—"rapporté du Brésil par M. Delalande fils"—sc. Rio de Janeiro).]

Columba plumbea pallescens Suethtlage, *Journ. f. Ornith.* lvi. p. 22 (1908.—Bom Lugar, Rio Pará—type examined).

Chlorocneus plumbea Pelzeln, *l.c.* p. 275 (part. : "var. subtus colore vinaceo induta"—Engenho do Gama, Borba).

No. 529. ♂ ad., Jamarysinho, 9. ix. 1907.—Wing 164 ; tail 130 ; bill 15 mm.

No. 528. ♀ ad., Jamarysinho, 9. ix. 1907.—Wing 160 ; tail 136 ; bill 14 mm.

No. 781. ♂ ad., Allianca, 12. xi. 1907.—Wing 167 ; tail 140 ; bill 14 mm.

"Iris brown, feet dark red, bill black."

These birds are undoubtedly distinct from *C. p. plumbea* Vieill., of Eastern Brazil (Bahia to Santa Catharina) and *C. p. baeri* Hellm., from the state of Goyaz. From the former they differ in their much smaller size, slenderer as well as shorter bill, and by having the head, neck, and lower parts bright lilac, while *C. p. baeri* may be recognized by its pearl-grey under surface, etc. The female from Juarysinho is rather more vinaceous on both head and lower parts than the males, agreeing in that respect with a male obtained by Natterer at Engenho do Gama, on the Rio Gaaporé. A second male and a female from the last-named locality are again somewhat different, being much paler in coloration, especially the female, which appears to agree with the description of *C. p. pallescens*. Some years ago I examined the type of Miss Sneath's race and found it nearly identical with a bird from Pará.

C. p. pallescens from Amazonia is, however, exceedingly close to *C. p. bogotensis* Berl. & Lev.,* though Colombian specimens seem to be rather larger and to have a greyish tinge on the crown. Without large series from different localities it will be impossible to arrive at definite conclusions respecting the various races of the *plumbea* group.

[415. *Columbula picui picui* (Temm.).

Columba picui Temminck, *Hist. Nat. Pige. et Gall.* i. pp. 435, 498 (1813.—ex Azara, No. 324 : Paraguay).

Columbula picui Hellmayr, *Nor. Zool.* xiv. p. 408 (Humaytha).

Left bank : Humaytha (Hoffmanns).

The female obtained by Mr. Hoffmanns agrees with others from Bahia and Argentine. In North-Eastern Brazil : Piahy and Ceará, the typical race is replaced by *C. picui strepitans* (Spix). Cf. Hellmayr, *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. 1906. p. 696, and Chubb, *Ibis* 1910. pp. 61-2.]

416. *Columbina † talpacoti* (Temm. & Knip).

Columba talpacoti Temminck & Knip, *Hist. Nat. Pigeons* i., fam. trois., p. 22. pl. xii. [s.n. "*C. minuta*"] (1808-11.—"l'Amérique méridionale").

Nos. 294, 729, 732. ♂ fere ad., ♂♂ juv., Calama, 26, 29. x. 1907.—Wing 89—90; tail 66—69; bill 11—12 mm.

Nos. 1056, 1057, 1058, 1059. ♂ vix ad., ♂♂ imm., ♀, Maruins, 24, 25. vii. 1908.—Wing 87—91; tail 64—69; bill 12 mm.

"Iris yellow or pale brown (294), feet flesh-colour or greyish red, bill black."

New to the fauna of the Rio Madeira, but Natterer † had secured it at São Vicente, Rio Gnaporé, in the vicinity of Pará, etc., etc.

417. *Leptotila rufaxilla* (Richard & Bernard).

"*Columba (Rufaxilla)*" Richard et Bernard, *Act. Soc. d'Hist. Nat. Paris* 1. i. p. 118, No. 74 (1792—Cayenne).

Leptotila rufaxilla Pelzeln, *l.c.* p. 279 (Borba).

No. 299. ♂ ad., Calama, 30. viii. 1907. "Iris yellowish grey, feet red, bill black."—Wing 140; tail 105; bill 16 mm.

Agrees well with Guianan specimens.

* *Ornis* vi. p. 32 (1890.—Bogotá).

† Cf. Allen, *Auk* xxv. 1908. pp. 301-6.

‡ *Orn. Bras.* iii. p. 277.

418. *Geotrygon montana* (Linn.).

Columba montana Linnaeus, *Syst. Nat.* x. p. 163 (1758.—ex Edwards & Sloane : Jamaica).

Oreopeleia montana Pelzeln, *l.c.* p. 279 (Borba).

Geotrygon montana Hellmayr, *Nor. Zool.* xiv. p. 407 (Humaytba).

Nos. 268, 286, 357, 394, 437. ♂♂ juv., ♀♀ juv., Calama, 25, 29. vii., 8, 15, 20. viii. 1907.

No. 777. ♂ juv., Allianca, 11. xi. 1907.

"Iris greyish or yellowish brown, feet light red, bill reddish grey."

419. *Odontophorus gujanensis gujanensis* (Gm.).

Tetrao gujanensis Gmelin, *Syst. Nat.* 1. ii. p. 767 (1789.—ex Buffon : Cayenne).

Odontophorus gujanensis Pelzeln, *l.c.* p. 289 (S. Vicente, Rio Guaporé ; Forte do Principe da Beira, Borba, Rio Madeira).

No. 684. ♀ ad., S. Isabel, Rio Preto, 12. x. 1907.—Wing 135 ; tail 64 ; bill 17 mm. "Iris brown, feet blackish brown, bill black."

This bird agrees well with Cayenne skins, but the dusky vermiculations of the under parts are slightly less distinct, and there is very little dusky spotting on the lower back and rump. The bill, too, is somewhat deeper and stouter. Whether separable from *gujanensis* or not, it is quite distinct from *O. g. marmoratus* Gould, of Bogotá, etc. The latter has been recorded by Miss Snethlage* from the R. Tapajóz, but this can hardly be correct, for specimens from the Pará district belong with *O. g. gujanensis*. Cf. *Nor. Zool.* xii. p. 304.

420. *Odontophorus stellatus* Gould.

Ortyx (Odontophorus) stellatus Gould, *Proc. Zool. Soc. Lond.* x. 1842. p. 183 (Feb. 1843.—Brazil).

Odontophorus stellatus Pelzeln, *l.c.* p. 290 (Bananeira, Borba).

No. 735. ♂ ad., Calama, 30. x. 1907.—Wing 146 ; tail 75 ; bill 22 mm.

No. 509. ♂ imm., Calama, 3. ix. 1907.—Wing 149 ; bill 22 mm.

Nos. 734, 574. ♀♀ ad., Calama, 30. x. 1907 ; Jamarysinho, 19. ix. 1907.—Wing 132, 136 ; tail 66, 67 ; bill 18, 20 mm.

"Iris pale brown, feet light green, bill black or dark grey."

O. stellatus is an Upper Amazonian type, ranging from the Napo and Eastern Peru to the Madeira Valley, but does not appear to occur farther east.

[421. *Crax globulosa* Spix.

Crax globulosa Spix, *Ac. Bras.* ii. p. 50. pls. lxx. (mas.), lxxi. (fem.) (1825.—"in sylvis fl. Solimões") ; Pelzeln, *l.c.* p. 288 (Rio Guaporé ; Bananeira, Piori, Salto Theotonio, Borba, Rio Madeira).

Rio Madeira : Bananeira, Piori, Salto Theotonio, Borba (Natterer). Cf. my remarks in *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. pp. 683-4.]

422. *Mitu mitu* (Linn.).

Crax mitu Linnaeus, *Syst. Nat.* xii. 1. p. 270 (1766.—ex Marcgrave, p. 194 : "Mitu"—N.E. Brazil ; cf. *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. p. 688).

Oarax mitu Pelzeln, *l.c.* p. 288 (Salto Theotonio, Borba).

No. 586. ♂ ad., Jamarysinho, 22. ix. 1907. "Iris dark red, feet yellowish red, bill clear red."

Agreeing with Spix's type in the Munich Museum.

* *Journ. f. Ornith.* 1908. p. 516.

[423. *Penelope superciliaris superciliaris* Temm.

Cf. *Nor. Zool.* xiv. p. 408 (Borba).

P. superciliaris var. Pelzel, *l.c.* p. 283 (Borba).

Right bank : Borba (Natterer, Hoffmanns).

Two birds in the Vienna Museum and a third at Tring have the ashy superciliary stripe barely indicated, while in a series from Bahia, Rio de Janeiro, S. Paulo, and Mattogrosso (Chapada) it is well developed. However, cf. my remarks *l.c.* p. 408.]

[424. *Penelope pileata* Wagl.

Penelope pileata Wagler, *Isis* 1830. p. 1109 (1830.—"in Brasiliæ provincia Pará"); Pelzel, *l.c.* p. 282 (Rio Madeira).

Rio Madeira (Natterer).

This specimen I have examined in the Vienna Museum.]

425. *Penelope jacquacu* Spix.

Penelope jacquacu Spix, *Av. Bras.* ii. p. 52. pl. lxxviii. (1825.—"in sylvis fluminis Solimoëns"); Hellmayr, *Nor. Zool.* xiv. p. 408 (Humaytha).

P. Boliviana Pelzel, *l.c.* p. 282 (Salto do Girao).

Nos. 548, 572, 573. ♂♂ ad., Jamarysinho, 13, 19. ix. 1907. "Iris brown, feet dark red, bill black, naked space on throat bright red."—Wing 280—300; tail 315—330 mm.

The specimens agree with Spix's type in the Munich Museum. This also is an Upper Amazonian species, the easterly limit of its range being apparently the Madeira Valley.

426. *Ortalis guttata* (Spix).

Penelope guttata Spix, *Av. Bras.* ii. p. 55. pl. lxxiii. (1825.—"ad flumen Solimoëns").

Ortalis albiventris (nec Wagler) Pelzel, *l.c.* p. 285 (Engenho do Gama, S. Vicente, Matogrosso, Forte do Principe, Rio Guaporé; Salto do Girao, Borba, Rio Madeira).

No. 479. ♂ ad. (moulting), Calama, 29. viii. 1907.—Wing 184; tail 207; bill 27 mm.

No. 568. ♂ ad., Jamarysinho, 18. ix. 1907.—Wing 185; tail 214; bill 25 mm
"Iris brown, feet reddish grey, bill black."

In addition, I have examined Natterer's series in the Vienna Museum. The Madeira skins agree in every respect with Spix's type. Cf. *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. 1906. pp. 691-2.

Like the foregoing species, *O. guttata* is an Upper Amazonian form, ranging eastwards as far as the Madeira Valley.

427. *Tinamus tao* Temm.

Tinamus tao Temminck, *Hist. Nat. Pig. et Gallin.* iii. p. 569 (1815.—"dans la province de Pará en Brésil"); Pelzel, *l.c.* iii. p. 290 (Cidade de Matogrosso, Rio Guaporé; Borba, Rio Madeira).*

No. 547. ♂ ad., Jamarysinho, 13. ix. 1907.—Wing 280; tail 120; bill 38 mm.

No. 546. ♀ ad., Jamarysinho, 13. ix. 1907.—Wing 275; tail 140; bill 38 mm.

"Iris brown, feet plumbeous, bill grey."

* "Miranha," cited by Salvadori (*Cat. Birds* xxvii. p. 498), is not a locality, but the name of one of the Indians employed by Natterer!

These specimens, as well as several others examined in the Vienna Museum, correspond exactly to Temminck's original description. The upper parts are bluish slate-grey, waved with black cross-lines and bars, broader on the rump and upper tail-coverts; on each side of the occiput and hindneck a distinct longitudinal stripe, banded black and white; throat and cheeks white, dotted and freckled with black; foreneck slate-grey, breast and abdomen paler, more ashy, waved and banded with blackish; under tail-coverts deep ochraceous cinnamon, mottled with black. Whether the examples from Venezuela (San Esteban) and Bogotá described by Salvadori (*l.c.*) as having the "upper parts greyish olive," and the under tail-coverts "grey, rufescent along the middle," belong to the same species appears to be open to doubt.

428. *Tinamus serratus serratus* (Spix).

Pezus serratus Spix, *Ar. Bras.* ii. p. 61. pl. lxxvi. (1825.—"in sylvis campestribus fl. Nigri");

Hellmayr, *Abhandl. Bayer. Akad. Wissensch.* xxii. 3, 1906, pp. 699, 719 (crit.).

Tinamus serratus serratus Hellmayr, *Nov. Zool.* xiv. p. 408 (Humaytha).

T. brasiliensis (nec Latham) Pelzeln, *l.c.* iii. p. 291 (Matogrosso, Rio Guaporé; Bananeira, Borba, Rio Madeira).

Nos. 307, 366. ♂ ad., ♂ imm., Calama, 31. vii., 11. viii. 1907.—Wing 220, 223; tail 90, 92; bill 29, 34 mm.

Nos. 507, 508. ♀ ♀ ad., Calama, 3. ix. 1907.—Wing 236, 227; tail 98, 100; bill 35½, 33 mm.

"Iris brown, feet plumbeous, bill blackish grey."

These birds are typical of *serratus*, agreeing with others from the Rio Negro and Matogrosso: forehead, pileum, and ear-coverts clear cinnamon-rufous; no trace of an occipital crest; middle of the abdomen plain white, without dusky cross-lines, etc.

T. s. serratus ranges from the upper Rio Negro (Marabitanas) and the Caura Valley, Eastern Venezuela, to the Madeira and Guaporé Rivers. It extends perhaps to Central Peru (Huánuco), though specimens from this country are slightly different. (Cf. Hellmayr, *l.c.* p. 719.)

[429. *Tinamus guttatus* Pelz.

Tinamus guttatus Pelzeln, *Verhandl. Zool. Bot. Gesellsch. Wien* xiii. pp. 1126, 1128 (1863.—Borba, Rio Madeira; Rio Negro, Pará); Hellmayr, *Nov. Zool.* xiv. p. 409 (Humaytha).

Right bank: Borba (Natterer); left bank: Humaytha (Hoffmanns).]

430. *Crypturus cinereus* (Gm.).

Tetrao cinereus Gmelin, *Syst. Nat.* 1. ii. p. 768 (1789.—ex Buffon: Cayenne).

Tinamus cinereus Pelzeln, *l.c.* p. 292 (Borba).

Crypturus cinereus Hellmayr, *Nov. Zool.* xiv. p. 409 (Humaytha).

No. 273. Adult, Calama, 28. x. 1907.—Wing 168; bill 27 mm.

No. 571. ♂ imm., Jamarysinho, 10. ix. 1907.—Wing 164; bill 24½ mm.

"Iris brown, feet dark brown, bill dark grey."

The immature male is more rufescent brown than the adult one. See my remarks *l.c.*

C. cinereus ranges from the Guianas to the Rio Madeira (both banks) and to Eastern Peru.

431. *Crypturus soui soui* (Herm.).

Tinamus Soui Hermann, *Tab. Affin. Anim.* p. 165 (1783.—ex D'Aubenton, Pl. enl. 829: Cayenne).
Crypturus soui Hellmayr, *Nor. Zool.* xiv. p. 409 (Humaytha).
Tinamus pileatus Pelzeln, *l.c.* p. 294 (Borba).

No. 454. ♂ ad., Calama, 26. viii. 1907.—Wing 128; bill 19 mm.

Nos. 601, 611, 688. ♂ ad., S. Isabel, 1, 3, 12. x. 1907.—Wing 120—125; bill 19 mm.

No. 610. ♀ ad., S. Isabel, 3. x. 1907.—Wing 130; bill 20 mm. (parent bird to two eggs).

No. 612. ♂ juv., S. Isabel, 3. x. 1907.—Wing 120 mm.

“Iris pale brown, feet light green or greyish green, bill black or dark grey.”

The series substantially corroborates what I have said *l.c.* The under parts are invariably deep ochraceous or tawny ochraceous, as in Guianan and Canra specimens, but the upper tail-coverts are either of the same dark rufous brown shade as the back or very slightly more reddish. The young bird is considerably paler and duller, both above and below. Two eggs, taken with the parent bird (No. 610), are of a reddish clay-colour and measure 38×29 , $36 \times 26\frac{1}{2}$ mm.

[432. *Crypturus parvirostris* Wagl.

Crypturus parvirostris Wagler, *Syst. Ar.*, Genus *Crypturus*, sp. 13 (1827.—Brasilia); Hellmayr, *Nor. Zool.* xiv. p. 410 (Humaytha).

Left bank: Humaytha (Hoffmanns).

The Humaytha birds have shorter wings than those from East and Southern Brazil, but do not differ in coloration.]

[433. *Crypturus adpersus adpersus* (Temm.).

Tinamus adpersus Temminck, *Hist. Nat. Pig. et Gall.* iii. p. 585 (1815.—Pará; coll. Hoffmanusegg in Mus. Berlin, type examined); Hellmayr, *Abhandl. Bayer. Akad. Wissensch.* xxii. 3. pp. 702 3 (crit.).

T. undulatus (nec Temminck) Pelzeln, *l.c.* p. 292 (part.: Borba).

Crypturus a. adpersus Hellmayr, *Nor. Zool.* xiv. p. 410 (Humaytha).

Right bank: Borba (Natterer); left bank: Humaytha (Hoffmanns).

The four examples from Borba obtained by Natterer are practically identical with the type in the Berlin Museum, said to be from “Pará” (cf. my remarks *l.c.* p. 703). The adult female secured by Mr. Hoffmanns at Humaytha has the black cross-markings of the back rather broader, thereby forming the passage to *C. a. radiatus* (Gray), which represents *C. a. adpersus* on the banks of the Rio Guaporé, one of the headwaters of the Madeira (see *l.c.* pp. 704–5).]

[434. *Crypturus strigulosus* (Temm.).

Tinamus strigulosus Temminck, *l.c.* pp. 594, 752 (1815.—“dans la province de Pará”—Siber coll. in Mus. Berlin); Pelzeln, *l.c.* p. 293 (Borba).

Crypturus strigulosus Hellmayr, *Nor. Zool.* xiv. p. 411 (Humaytha).

Right bank: Borba (Natterer); left bank: Humaytha (Hoffmanns).

This species is hitherto only known from Pará and the Rio Madeira, ranging southwards as far as Cidade de Mattogrosso, Rio Guaporé.]

[435. *Crypturus bartletti* Sl. & Salv.

Crypturus bartletti Sclater & Salvin, *Proc. Zool. Soc. Lond.* 1873, p. 311 (1873.—Santa Cruz, Ucayali River, Eastern Peru); Hellmayr, *Nov. Zool.* xiv, p. 410 (Humaytha).

Left bank : Humaytha (Hoffmanns).

Like so many other Upper Amazonian types, e.g. *Anoplops salvini*, *A. melanosticta*, etc., this species ranges from Eastern Peru to the left bank of the Rio Madeira, but does not appear to occur on the right side of the stream. Miss Snethlage* has lately recorded it from the Upper Purús.]

436. *Crypturus variegatus* (Gm.).

Tetrao variegatus Gmelin, *Syst. Nat.* 1. ii. p. 768 (1789.—ex D'Aubenton, Pl. enl. 828 : Cayenne).
Tinamus variegatus Pelzeln, *l.c.* p. 293 (Borba).

No. 254. ♂ ad., Calama, 23. vii. 1907.—Wing 155 ; bill 39½ mm.

Nos. 129, 723. ♀ ad., ♀ imm., Calama, 29. vi., 23. x 1907.—Wing 155, 158 ; bill 29, 31 mm.

No. 977. ♂ imm., Maruins, 7. vii. 1908.—Wing 150 ; bill 30 mm.

No. 127. ♀ juv., Calama, 29. vi. 1907.—Wing 138 ; bill 23 mm.

“ Iris brown, feet greyish green, bill black, below greyish.”

The adult birds agree with others from Venezuela (Caura) and Rio Negro (Natterer coll.). *C. variegatus* inhabits the Guianas, the Caura district in Eastern Venezuela, as well as Northern Brazil from the upper Rio Negro (Marabitanas) to Pará and south to the Rio Madeira, where it is as yet only known from the right bank. In Eastern Ecuador it is apparently replaced by a closely allied form, *C. salvini* Salvad.,† which may be only subspecifically distinct, but so far I have not met with this race.

[437. *Rhynchotus rufescens catingae* Reiser.

Cf. Hellmayr, *Nov. Zool.* xiv. p. 411 (Humaytha).

Left bank : Humaytha (Hoffmanns).

No additional material has come to hand.]

438. *Aramides cajanea* (P. L. S. Müll.).

Fulica cajanea P. L. S. Müller, *Natursyst.* Suppl. p. 119 (1776.—ex D'Aubenton, Pl. enl. 352 : Cayenne).

Aramides cajanea Hellmayr, *Nov. Zool.* xiv. p. 412 (Humaytha).

A. ruficollis (nec Gmelin) Pelzeln, *l.c.* p. 316 (Borba ; Rio Curicuriari).

No. 759. ♀ ad., Allianca, 8. xi. 1907. “ Iris and feet clear red, bill pale green.”—Wing 183 ; tail 60 ; bill 50 mm.

The skin agrees perfectly with several others from Cayenne, etc. The two birds named *A. ruficollis* by Pelzeln are more deeply coloured on the lower parts, but similar specimens occur also in Cayenne, Surinam, etc., along with pale-bellied ones.

* *Journ. f. Orn.* 1908, p. 23.

† *Cat. Birds Brit. Mus.* xxvii. p. 537 (1895.—Sarayaçu, Eastern Ecuador).

[439. *Creciscus viridis viridis* (P. L. S. Müll.).

Rallus viridis P. L. S. Müller, *Natursyst.* Suppl. p. 120 (1776.—ex D'Aubenton, Pl. enl. 368; Cayenne).

Creciscus v. viridis Hellmayr, *Nor. Zool.* xiv. p. 412 (Humaytha).

Left bank: Humaytha (Hoffmanns). Natterer obtained it at the sugar-mill of Captain Gama, on the Rio Guaporé, as well as near Pará.*]

440. *Heliornis fulica* (Bodd.).

Columbus fulica Boddaert, *Tabl. Pl. enl.* p. 54 (1783.—ex D'Aubenton, Pl. enl. 893; Cayenne).

No. — . ♂ ad., S. Isabel, Rio Preto (no date). "Iris brown, feet black and white, bill black, lower mandible grey."—Wing 140; tail 95; bill 30 mm.

441. *Eurypyga helias* (Pall.).

Ardea Helias Pallas, *Neue Nord. Beytr.* ii. p. 48. pl. iii. (1781.—"Brasilien").

No. 550. ♀ ad., Jamarýsinho, Iá. ix. 1907.—Wing 211; tail 160; bill 50 mm.

No. 1036. ♂ ad., Marúins, Rio Machados, 19. vii. 1908.—Wing 218; tail 160; bill 54 mm.

* "Iris yellow or pale red, feet greyish brown, bill black, below yellow."

Similar to Guianan and Venezuelan specimens.

[442. *Psophia leucoptera* Spix.

Psophia leucoptera Spix, *Ar. Bras.* ii. p. 67. pl. lxxxiv. (1825.—"in sylvis campestribus fl. Rio Negro"—errore! We substitute left bank of Rio Madeira); Pelzel, *l.c.* p. 299 (Cachoeira das Pederneiras); Hellmayr, *Nor. Zool.* xiv. p. 412 (Humaytha).

Left bank of the Rio Madeira: Pederneiras (Natterer), Humaytha (Hoffmanns). Ranges to Bolivia and Peru. On the right side of the Madeira it is replaced by the next species.]

443. *Psophia viridis* Spix.

Psophia viridis Spix, *Ar. Bras.* ii. p. 66. tab. lxxxiii. (1825.—Villa Nova on the Amazons (?)).

Nos. 996, 997. ♂♂ ad., Marúins, 11, 14. vii. 1908. "Iris brown, feet greenish yellow, bill green or greyish green."—Wing 273, 280; tail 125, 130; bill 37 mm.

Nos. 974, 999. ♂♂ imm., Marúins, 6, 11. vii. 1908. "Iris brown, feet greenish yellow, bill green or greyish green."—Wing 255, 280; tail 130; bill 34, 38½ mm.

Nos. 988, 998. ♀ ad., ♀ imm., Marúins, 9, 11. vii. 1908. "Iris brown, feet greenish yellow or greyish, bill greyish green."—Wing 275, 265; tail 125, 110; bill 36 mm.

These specimens agree with Spix's type in the Munich Museum. The series presents some variation in the colour of the mantle and inner secondaries. Sometimes these parts are chiefly dark brown with but little admixture of green, while in other specimens the green is predominating. This variation appears to be purely individual, for it does not depend on age or sex.

* *Porzana cayanensis* Pelzel, *Zur Orn. Bras.* iii. p. 316.—Other species of the family Rallidae likely to occur on the Rio Madeira are: *Amaurolimnas coueslor* (Gosse), *Neocrex erythrops* (ScL), *Thyrorhina schomburgkii* (Cab.), etc., all of which were obtained by Natterer on the banks of the Rio Guaporé.

P. obscura Pelz.,* from the Pará district, is, as pointed out by Dr. P. L. Selater,† quite distinct from *P. viridis*, and may be distinguished by the following characters. The bill is shorter, with the upper mandible deeper, stouter, and more strongly curved, and is of a blackish brown colour with but a few small light spots here and there. The feet are blackish (not pale greenish or yellowish green as in *P. viridis*). While in *P. viridis* the whole foreneck is covered with brilliant violet-blue feathers, there is just a faint purplish sheen to be seen in *P. obscura*. In the latter species the mantle, too, is much darker, chocolate-brown with scarcely any green, and the upper wing-coverts show but a few narrow apical bands of dull blue or green, while there are broad, metallic green and purplish blue tips in *P. viridis*. The Munich Museum is indebted to Miss Sæthlæge for a fine specimen of *P. obscura*.

Until Mr. Hoffmanns procured his series the type discovered by Spix and the two females obtained by Natterer were, as far as I am aware, the only specimens of *P. viridis* existing in European Museums. The species is with certainty only known from the **right** bank of the Rio Madeira (Cachoeira de Guajará and Salto Theotônio—Natterer; Maruins—Hoffmanns). Spix's original locality Villa Nova (north bank of the Amazons, near the junction of the Rio Xingú) is quite unreliable, for the type-specimen had evidently been kept in confinement. Wallace's record ‡ of *P. viridis* being found in the forests of Pará refers, of course, to *P. obscura*.

The series from Maruins has been divided between the Munich Museum and Count Berlepsch's collection.

444. *Harpiprion cayennensis* (Gm.).

Tantalus cayennensis Gmelin, *Syst. Nat.* 1. ii. p. 652 (1789.—ex D'Aubenton, Pl. enl. 820 : Cayenne).

No. 110. ♂ ad., Calama, 26. vi. 1907.—Wing 305 ; tail 155 ; bill 130 mm.

No. 557. ♀ ad., Jamarysinho, 17. ix. 1907.—Wing 295 ; tail 160 ; bill 110 mm.

Nos. 933, 1039. ♂ ad., ♂ imm., Maruins, 19. vi., 19. vii. 1908.—Wing 285, 276 ; tail 150 ; bill 118, 115 mm.

“ Iris brown, feet light green, bill dark green or greenish dusky.”

445. *Ardea cocoi* Linn.

Ardea Cocoi Linnaeus, *Syst. Nat.* xii. 1. p. 237 (1766.—ex Brisson, etc. : “Cayana”).

No. 1033. ♂ imm., Maruins, 17. vii. 1908.—“ Iris yellow, feet black, bill dark grey, lower mandible yellow.”

Widely distributed in South America.

446. *Agamia agami* (Gm.).

Ardea Agami Gmelin, *Syst. Nat.* 1. i. p. 629 (1789.—ex Buffon & D'Aubenton, Pl. enl. 850 : Cayenne) ; Pelzel, *l.c.* p. 301 (Matogrosso, etc.).

No. 1035. ♀ juv., Maruins, 19. vii. 1908.—“ Iris yellow, feet grey, bill black, below greyish brown.”

* *Sitzungsber. math.-naturwiss. Cl. Akad. Wissensch. Wien* xxiv. 1857. p. 373.

† *Ibis* 1898, pp. 520-4. tab. xi.

‡ *Travels on the Amazons and Rio Negro* 1853, p. 473.

[447. *Cancroma cochlearia* Linn.

Cancroma Cochlearia Linnaeus, *Syst. Nat.* xii. 1. p. 233 (1766.—ex Brisson; Cayenne); Pelzeln, *l.c.* p. 303 (Borba, etc.).

Borba (Natterer). Widely distributed in South America.]

448. *Pilherodius pileatus* (Bodd.).

Ardea pileata Boddaert, *Tabl. Pl. enl.* p. 54 (1783.—ex D'Aubenton, *Pl. enl.* 907: Cayenne).

Nycticorax pileatus Pelzeln, *l.c.* p. 392 (Matogrosso, Caieara, etc.).

No. 1005. ♂ ad., Maruins, 12. vii. 1908. "Iris clear yellow, feet and bill pale plumbeous."

Ranges from South Brazil to Guiana and Upper Amazonia.

[449. *Butorides striata* (Linn.).

Ardea striata Linnaeus, *Syst. Nat.* x. p. 144 (1758.—Sarinam: Rolander).

Ardea scapularis Pelzeln, *l.c.* p. 301 (Matogrosso, Rio Negro, etc.).

Butorides striata Hellmayr, *Nov. Zool.* xiv. p. 411 (Humaytha).

Humaytha (Hoffmanns). Widely distributed in South America.]

450. *Tigrisoma lineatum* (Bodd.).

Ardea lineata Boddaert, *Tabl. Pl. enl.* p. 52 (1783.—ex D'Aubenton, *Pl. enl.* 860: Cayenne).

Tigrisoma lineatum Hellmayr, *Nov. Zool.* xiv. p. 411 (Humaytha).

No. 556. ♀ ad., Jamarysinho, 17. ix. 1907. "Iris golden brown, feet green, bill black, below brown."

An adult bird, in every respect similar to another from Venezuela.

[451. *Zebrilus pumilus* (Bodd.).

Ardea pumila Boddaert, *Tabl. Pl. enl.* p. 54 (1783.—ex D'Aubenton, *Pl. enl.* 898: "Le Crabier, des Philippines" (= rufous phase)—errore! *Cayenne* substituted as type locality).

Zebrilus pumilus Hellmayr, *Nov. Zool.* xiv. p. 412 (Humaytha).

Left bank: Humaytha (Hoffmanns).

Natterer procured a specimen at the sugar-mill of Captain Gama, on the Rio Guaporé.*]

[452. *Jabirú mycteria* (Licht.).

Ciconia mycteria Lichtenstein, *Verz. Duibl. Berliner Mus.* p. 76 (1823.—based upon "*Mycteria americana*" (nec Linn.) Latham: "in Am. calid. palud."—*Cayenne* substituted as type locality, aut. Berlepsch).

Mycteria americana (nec Linnaeus) Pelzeln, *l.c.* p. 305 (Borba).

Right bank; Borba (Natterer). Widely distributed in South America.]

453. *Hoploxypterus cayanus* (Lath.).

Charadrius cayanus Latham, *Ind. Orn.* ii. p. 749 (1790.—ex Buffon & D'Aubenton, *Pl. enl.* 833: Cayenne).

Nos. 168, 417. ♀♀ ad., Calama, 5. vii., 18. viii. 1907. "Iris dark brown, feet red, bill black."—Wing 140, 148; tail 64, 59; bill 25, 23½ mm.

Not different from Guianan and Venezuelan specimens.

* *Tigrisoma undulatum* Pelzeln, *Zur Orn. Bras.* iii. 1869. p. 302.

454. *Charadrius dominicus dominicus* P. L. S. Müll.

Charadrius dominicus P. L. S. Müller, *Natursyst.* Suppl. p. 116 (1776.—ex Brisson : S. Domingue).
C. pluvialis (nec Linn.) Pelzeln, *l.c.* p. 297 (Engenho do Gama, Rio Guaporé).

No. 629. ♂ (in winter dress), S. Isabel, 6. x. 1907. "Iris dark brown, feet grey, bill black."

455. *Aegialitis collaris* (Vieill.).

Charadrius collaris Vieillot, *Nouv. Dict.* xxvii. p. 136 (1818.—ex Azara, No. 392 : Paraguay).

Nos. 409, 426, 452. ♂♂ ad., Calama, 17, 18, 25. viii. 1907.—Wing 95—96 ; tail 45—48 ; bill 13—15 mm.

Nos. 408, 425. ♀♀ ad., Calama, 17, 18. viii. 1907.—Wing 95, 97 ; tail 47, 46 ; bill 15 mm.

"Iris dark brown, feet yellow or yellowish grey, bill black."

Like specimens from Bogotá, South Brazil, etc.

456. *Helodromas solitarius* (Wils.).

Tringa solitaria Wilson, *Amer. Ornith.* vii. p. 53. pl. 58. fig. 3 (1813.—Hudson's Bay, N. America).

Totanus solitarius Pelzeln, *Orn. Bras.* iii. p. 309 (Eng. do Gama, Rio Guaporé).

No. 591. ♀ ad., Jamarysinho, 25. ix. 1907.—"Iris blackish, feet grey-brown, bill black."

No. 626. ♀ ad. (assuming breeding plumage), S. Isabel, 5. x. 1907.—"Iris brown, feet olive-green, bill black."

A winter visitor to South America.

457. *Bartramia longicauda* (Bechst.).

Tringa longicauda Bechstein, *Kurze Übers. Latham* iv. p. 453. pl. 184 (1811.—"Nordamerika").

Tringoides Bartramia Pelzeln, *l.c.* p. 310 (Engenho do Gama, Rio Guaporé).

Nos. 770, 772. ♂♀ ad., Allianca, 9. xi. 1907.—Wing 155 ; tail 78, 84 ; bill 27, 29 mm. "Iris dark brown, feet light yellowish green, bill black, below yellow."

This also is a winter migrant to Brazil.

[458. *Tringites subruficollis* (Vieill.).

Tringa subruficollis Vieillot, *Nouv. Dict.* xxxiv. p. 465 (1819.—ex Azara : Paraguay).

Tringoides rufescens Pelzeln, *l.c.* p. 310 (Borba).

Borba (Natterer). Also a winter visitor to Amazonia.]

[459. *Tringa fuscicollis* Vieill.

Tringa fuscicollis Vieillot, *Nouv. Dict.* xxxiv. p. 461 (1819.—ex Azara : Paraguay).

Tringa Bonapartei Pelzeln, *l.c.* p. 311 (Caicara, Engenho do Gama, Rio Guaporé).

Rio Guaporé : Engenho do Gama (Natterer).]

460. *Tringa maculata* Vieill.*

Tringa maculata Vieillot, *Nouv. Dict.* xxxiv. p. 465 (1819.—"aux îles Antilles et dans les parties méridionales des Etats-Unis") ; Pelzeln, *l.c.* p. 311 (Engenho do Gama, Matogrosso : Rio Guaporé).

* Besides those mentioned above, many other species of *Limicolæ* are likely to occur during migration time on the banks of the Madeira. Natterer obtained quite a number, either on the Guaporé, or farther north in the Rio Negro district. Their names may be found in Pelzeln's *Ornithologie Brasiliens* iii. pp. 296-8, 308-13.

No. 617. ♂ ad. (winter plumage), S. Isabel, 3. x. 1907. "Iris dark brown, feet greyish green, bill black."—Wing 136; tail 60; bill 29 mm.

[461. *Plotus anHINGA* Linn.

Plotus AnHINGA Linnaeus, *Syst. Nat.* xii. 1. p. 218 (1766.—ex Marcgrave; Eastern Brazil); Pelzeln, *l.c.* p. 325 (Borba).

Borba (Natterer).]

[462. *Palamedea cornuta* Linn.

Palamedea cornuta Linnaeus, *Syst. Nat.* xii. 1. p. 232 (1766.—ex Marcgrave & Brisson; Eastern Brazil and Guiana); Pelzeln, *l.c.* p. 313 (Bananeira).

Cachoeira do Bananeira (Natterer).]

[463. *Alopochen jubata* (Spix).

Anser jubatus Spix, *Av. Bras.* ii. p. 84. pl. cviii. (1825.—"ad ripam fl. Solimões").
Chendolopus jubatus Pelzeln, *l.c.* p. 319 (Barra do Rio Guaporé).

Rio Madeira: Barra do R. Guaporé (Natterer).]

III. SUMMARY.

In the foregoing account I have only dealt with the species that have actually been taken in the Madeira district, yet their number could easily be increased by adding those which were observed or collected by Natterer farther south, on the banks of the Rio Guaporé, as well as on the Rio Negro in the north, and which are very likely to occur also in the intervening country. The Rio Madeira faunistically belongs to the great Amazonian subregion. According to its geographical situation the avifauna shows a mixed character, being composed partly of Upper Amazonian forms, partly of species peculiar to the Lower Amazons, though there are, at the same time, a good many characteristic species not known to occur elsewhere. For many Upper Amazonian forms the Madeira Valley appears to constitute the easterly limit of their range. Quite a number of them reach the left bank of the river, while they are not found at all or represented by allied forms on the right side. Others are met with on both banks, but not recorded from any locality farther east. A certain difference apparently exists between the bird-life of Borba and that we find farther up in the Machados district. Many striking Lower Amazonian species extend along the south shore of the Amazons to Borba and even to the Rio Guaporé, occurring only on the right side, whose avifauna shows a decided similarity to that of the Tapajóz. Unfortunately, our knowledge of the ornithology of Western Matto Grosso is far from complete, resting exclusively upon Natterer's researches; still from the scanty information as yet available it would appear that the fauna of the Rio Guaporé is essentially Amazonian, while a very different lot of birds was met with by the great Austrian naturalist at Villa Maria and other places on the Upper Paraguay.

The subjoined tabular lists may serve to illustrate the above conclusions.

(A) Species peculiar to the Madeira Valley. Unless otherwise stated they are restricted to the right bank of the stream.

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| 1. <i>Odontorhynchus cinereus</i> . | 16. <i>Dendrocopates certhia concolor</i> . |
| 2. <i>Euphonia lanirostris lanirostris</i> (both banks). | 17. <i>Thamnophilus major borbae</i> (both banks). |
| 3. <i>Tachyphonus cristatus madeirae</i> (" "). | 18. <i>Myrmotherula menetriesii berlepschi</i> . |
| 4. <i>Hemithraupis flaricollis centralis</i> (" "). | 19. <i>Scelateria schistacea humaythae</i> (both banks). |
| 5. <i>Cyanocorax chrysops diesingii</i> . | 20. <i>Hypocnemis myotherina sororia</i> . |
| 6. <i>Platyrinchus senex mattereri</i> . | 21. <i>Anoplops hoffmannsi</i> . |
| 7. <i>Todirostrum senex</i> . | 22. <i>Phlegopsis borbae</i> . |
| 8. <i>Pipra aureola flaricollis</i> (left bank). | 23. <i>Liosceles t. thoracicus</i> . |
| 9. <i>P. aureola calamae</i> . | 24. <i>Nomula scelateri</i> (left bank). |
| 10. <i>Tityra leucura</i> . | 25. <i>Pteroglossus bitorquatus sturmi</i> . |
| 11. <i>Attila spadiceus rufigularis</i> . | 26. <i>Pyrrhura rhodogaster</i> . |
| 12. <i>Xenops rutilus tenuirostris</i> . | 27. <i>Brotopogon chrysosoma</i> . |
| 13. <i>Hylecistastes uniformis</i> . | 28. <i>Amazilia mattereri</i> (left bank). |
| 14. <i>Decomychura stictolacuna</i> . | 29. <i>Penelope pileata</i> . |
| 15. <i>Dendrocopates hoffmannsi</i> . | 30. <i>Psophia viridis</i> (right bank). |

(B) Species peculiar to that tract of country bounded by the Madeira and Tapajóz Rivers.

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| 1. <i>Leucolepis modulator griseolateralis</i> . | 7. <i>Myrmotherula ornata hoffmannsi</i> . |
| 2. <i>Pachysylvia muscipapina griseifrons</i> . | 8. <i>Myrmelastes luctuosus luctuosus</i> . |
| 3. <i>Pipra mattereri</i> . | 9. <i>Phlegopsis nigromaculata boumami</i> . |
| 4. <i>Dendrorius elegans</i> . | 10. <i>Conopophaga melanogastra</i> . |
| 5. <i>Thamnophilus aethiops punctuliger</i> . | 11. <i>Thalassidroma balzani</i> . |
| 6. <i>Dysithamnus s. schistaceus</i> . | 12. <i>Picumnus borbae</i> . |

(C) Species peculiar to Lower Amazonia (Pará, Tocantins, Tapajóz, etc.) and the Madeira district (as far as Cidade de Mattogrosso, Rio Guaporé).

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| 1. <i>Pachysylvia thoracica semicincta</i> . | 10. <i>Pteroglossus inscriptus</i> . |
| 2. <i>Calospiza albertina</i> . | 11. <i>Selenidera maculirostris gouldii</i> (on the
Madeira as far as Borba). |
| 3. <i>Suethlaga minor</i> . | 12. <i>Pyrrhura picta amazonum</i> (also on left
bank of Madeira). |
| 4. <i>Chromochloris manacus parus</i> . | 13. <i>Gymnopsitta vulgaris</i> (as far as Borba). |
| 5. <i>Attila bolirians mattereri</i> . | 14. <i>Leucopternis kuhli</i> . |
| 6. <i>Automolus infuscatns paraensis</i> . | 15. <i>Syrnium supercilare</i> . |
| 7. <i>Hypocnemis myotherina ochrolaema</i> (on the
Madeira up to Borba only). | 16. <i>Crypturus strigulosus</i> . |
| 8. <i>Chloronerpes chrysocloros paraensis</i> . | |
| 9. <i>Picumnus aurifrons aurifrons</i> . | |

(D) Species representing each other on different sides of the Rio Madeira.

LEFT BANK.

1. *Leucolepis modulator modulator*.
2. *Thryothorus genibarbis juruamus*.
3. *Pipra aureola flaricollis*.
4. *Dendrorius guttata guttatoides* (also near
Calama, right bank).
5. *Dendrozetetes rufigula derillei*.
6. *Thamnophilus aethiops polionotus*.
7. *Scelateria schistacea humaythae* (also in the
Machados district, right bank).
8. *Hypocnemis myotherina melanolaema*.
9. *Phlegopsis nigromaculata nigromaculata*.
10. *Veniliornis ruficeps haematostygma* (also in
the Machados district).
11. *Buceo tamatia palmentum*.
12. *Psophia leucoptera*.

RIGHT BANK.

1. *L. modulator griseolateralis*.
2. *T. g. genibarbis*.
3. *P. aureola fasciicauda* (Machados, above
the Falls).
4. *P. aureola calamae* (Calama, Allianca).
5. *D. guttata cytoni* (Borba).
6. *D. rufigula* subsp.
7. *T. aethiops punctuliger*.
8. *S. schistacea leucostigma* (Borba).
9. *H. myotherina sororia* (Machados).
10. " " *ochrolaema* (Borba).
11. *P. nigromaculata boumami*.
12. *V. ruficeps ruficeps* (Borba).
13. *B. tamatia tamatia*.
14. *P. viridis*.

(E) Upper Amazonian species ranging to the right bank of the Rio Madeira, but not occurring farther east.

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|--|--|
| <ol style="list-style-type: none"> 1. <i>Lanio versicolor</i>. 2. <i>Thlypopsis sordida amazonum</i> (?). 3. <i>Saltator coerulescens azarae</i>. 4. <i>Muscisaxicola fluvitilis</i>. 5. <i>Todirostrum chrysocrataphum</i>. 6. <i>T. latirostre</i>. 7. <i>Chiroziphia regina</i>. 8. <i>Synallaxis propinqua</i>. 9. <i>Ancistrops strigilatus</i>. 10. <i>Automolus subulatus subulatus</i>. 11. <i>Thamnophilus nigrocinereus tschudii</i>. 12. <i>T. dolatus subradiatus</i>. 13. <i>Myrmotherula hancwelli hancwelli</i>. 14. <i>Hypocnemis naxia theresae</i>. 15. <i>H. poecilinota griseiventris</i>. 16. <i>H. hemileuca</i>. 17. <i>Ramphocaenus melanurus amazonum</i>. | <ol style="list-style-type: none"> 18. <i>Conopophaga aurita</i>. 19. <i>Chaetura cinereiventris sclateri</i>. 20. <i>Phoebastria philippii</i>. 21. <i>Prionornis p. pyrrholaemus</i>. 22. <i>Momasa morphoeus peruanus</i>. 23. <i>Nonula rubecula cineracea</i>. 24. <i>Cupito aurantiicollis</i>. 25. <i>Ramphastos cuvieri cuvieri</i>. 26. <i>R. culminatus</i>. 27. <i>Pteroglossus beauharnessii</i>. 28. <i>Conurus weddellii</i>. 29. <i>Pionites leucogaster xanthomeris</i>. 30. <i>Leucopternis schistacea</i>. 31. <i>Otus watsonii</i>. 32. <i>Odontophorus stollatus</i>. 33. <i>Ortalis guttata</i>. 34. <i>Penelope jacquacu</i>. |
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(F) Upper Amazonian species ranging to the left bank of the Rio Madeira, but not occurring on the right.

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|---|--|
| <ol style="list-style-type: none"> 1. <i>Calospiza nigricincta</i>. 2. <i>Knipolegus sclateri</i>. 3. <i>Pipra corlesti-pileata</i>. 4. <i>Amoplops saltrini</i>. 5. <i>A. melanasticta</i>. | <ol style="list-style-type: none"> 6. <i>Phlegopsis erythroptera</i>. 7. <i>Bucco tamatia pulmentum</i>. 8. <i>Pteroglossus flaricostis mariae</i>. 9. <i>Crypturus bartletti</i>. |
|---|--|

(G) Species of the Rio Madeira represented by nearly allied races on the Guaporé.

- | RIO MADEIRA. | RIO GUAPORÉ. |
|---|--|
| <ol style="list-style-type: none"> 1. <i>Saltator coerulescens azarae</i>. 2. <i>Paroaria gularis gularis</i>. 3. <i>Lamprosar tanagrinus tanagrinus</i>. 4. <i>Ramphocaenus melanurus amazonum</i>. 5. <i>Thalurania balzani</i>. | <ol style="list-style-type: none"> 1. <i>S. coerulescens coerulescens</i>. 2. <i>Paroaria gularis cervicalis</i>. 3. <i>L. tanagrinus violaceus</i>. 4. <i>R. melanurus sticturus</i>. 5. <i>T. eriphile bueri</i>. |

In concluding, I have to thank the Hon. Walter Rothschild and Dr. E. Hartert for entrusting me with the study of the interesting material and for publishing the report thereon in this periodical. I am also under great obligations to my kind friend Dr. von Lorenz, of Vienna, who lent me numerous specimens from Natterer's collection, and to Count Berlepsch for similar favours and valuable advice in difficult questions.

DESCRIPTIONS OF NEW *SYNTOMIDAE*.

BY THE HON. WALTER ROTHSCHILD, PH.D.

1. *Callitomis gigas* sp. nov.

♂. Antennae simple, pubescent, black-brown; legs black-brown; head and collar yellow; thorax pale yellowish fuscous; abdomen pale sulphur-yellow with seven dark chocolate-brown rings.—Wings brownish fuscous, densely clothed with yellow scales; veins, costal edge, and fringes dark brown; forewing has a patch below base of cell, the cell, a patch between veins 3 and 4, 4 and 5, and 6 and 7 semihyaline pale buff; whole of costal area between costal and subcostal nervures yellow; hindwing has base, a larger spot between veins 2 and 3, and a smaller one between 3 and 5 semihyaline buff.

Length of forewing: 26 mm.

Hab. North Luzon, Philippine Islands, 5000—6000 ft. (J. Whitehead).

2 ♂♂.

2. *Callitomis distorta* sp. nov.

♀. Antennae brown; legs brown; thorax black-brown with orange stripes; frons orange; abdomen black-brown with six narrow orange rings.—Forewing deep earth-brown.—Hindwing minute, distorted, and aborted, deep earth-brown.

Length of forewing: 14 mm.; of hindwing 6 mm.

Hab. Pulo Bisa, north of Obi Island, September 1897 (W. Doherty).

2 ♀♀.

3. *Ceryx affinis* sp. nov.

♂. Differs from *sphenodes* Meyr. in the abdomen having a longitudinal black dorsal band, and in the hyaline patch on hindwing being reduced to a round spot and having a yellow streak below base of cell.

♀. Similar, but without abdominal band and yellow streak at base of hindwing.

Length of forewing: ♂ 14 mm.; ♀ 16 mm.

Hab. Kumasi River, North-East British New Guinea (low country), September 1907 (A. S. Meek).

7 ♂♂, 2 ♀♀.

4. *Ceryx meeki* sp. nov.

♂. Pectus, frons, and tegulae orange; antennae black; thorax black with orange patch; abdomen black with seven complete orange bands.—Forewing black glossed with purple; a large patch below the cell, a large patch within the cell, a smaller patch between veins 3 and 4, one between veins 4 and 5, and one between 7 and 8 hyaline.—Hindwing orange, costal and outer margin broadly black, but tornus and abdominal margin orange.

♀. Similar, but hyaline spots larger and hindwing rounder.

Length of forewing: ♂ 13 mm.; ♀ 15 mm.

Hab. Milne Bay, British New Guinea, November 1898 to January 1899 (A. S. Meek).

2 ♂♂, 1 ♀.

5. *Ceryx keiensis* sp. nov.

♂. Differs from *puncta* Druce in having tegulae and frons orange, abdomen bright steel-blue, and subdorsal points orange. The hyaline patches on forewings also larger.

♀. Similar, but whole head and thorax orange.

Length of forewing : 14 mm.

Hab. Key Islands, January 1897 (H. Kühn).

12 ♂♂, 4 ♀♀

6. *Ceryx dohertyi* sp. nov.

♂. Frons white; antennae brown-black with white tips; thorax brown-black; abdomen, first four segments oily steel-green, remainder olive-bronze, with a narrow whitish ring on seventh segment.—Forewing brown-black, a large patch below cell, a small one in cell, and a very large patch beyond cell divided into four by the nervures, hyaline; basal three-fifths of hindwing hyaline, margins and outer two-fifths black-brown.

♀. Similar, but with five abdominal whitish rings.

Length of forewing : 14 mm.

Hab. Perak, January—February 1890 (W. Doherty), type and 2 ♂♂, 1 ♀ (Elwes coll.); Padang Rengas, Malay Peninsula, 2 ♂♂, 1 ♀; Gunong Ijau, Malay Peninsula, 1 ♀.

7. *Ceryx ericssoni* sp. nov.

♂. Head, antennae, thorax, and abdomen black.—Forewing black, a large patch between veins 1 and 2, a large patch in cell, a smaller patch between veins 2 and 3, large patches between veins 3 and 4 and 4 and 5, and a large patch beyond cell hyaline.—Hindwing black with central hyaline patch.

Length of forewing about 16 mm.

Hab. Padang Sidempoean, West Sumatra (Ericsson).

1 ♂.

8. *Ceryx aurantiobasis* sp. nov.

♂. Coxae of forelegs, head, and tegulae orange; antennae brown; thorax black-brown with orange patch; abdomen black-brown with lateral series of orange patches.—Forewing black-brown, a large patch in cell and one below it hyaline; a hyaline patch between veins 4 and 5, a similar small spot between veins 6 and 7, and a larger hyaline patch beyond cell.—Hindwing: basal one-fourth orange, rest black-brown with oval hyaline patch.

♀. Similar.

Length of forewing : ♂ 14 mm.; ♀ 17 mm.

Hab. Kapaur, Dutch South-West New Guinea (low country), January 1897 (W. Doherty).

3 ♂♂, 1 ♀.

9. *Ceryx kuehni* sp. nov.

♂. Entirely black.—Forewing with an enormous patch below cell reaching to outer margin; a large patch in cell, a patch between veins 2 and 3 and 3 and 4, and one between 6 and 7 and 7 and 8 hyaline.—Hindwing yellowish hyaline with black margins.

Length of forewing : 12 mm.

Hab. Taam Island, west of Key Islands, July 25, 1898 (H. Kühn).

1 ♂.

10a. *Ceryx swinhoei minor* subsp. nov.

♀. Smaller; hyaline spots much reduced.

Length of forewing: *swinhoei swinhoei*, 16 mm.

" " *swinhoei minor*, 12 mm.

Hab. Manavolka Island (=Manawoka), Moluccas, November 13, 1899 (H. Kühn).

1 ♀.

11. *Trichaeta hosei* sp. nov.

♀. Antennae, basal two-thirds black-brown, apical one-third whitish buff; head, thorax, and abdomen black shot with greenish steel-blue.—Forewing dull black shot with deep purple, below base of cell a quadrate hyaline white spot, beyond cell a large oblique hyaline patch.—Hindwing black with purple sheen and central hyaline spot.

Length of forewing: 17 mm.

Hab. Mount Mulu, North Borneo, 1000—4000 ft., August—December 1894 (Hose).

1 ♀.

12. *Trichaeta kannegieteri* sp. nov.

♀. Antennae black, tips white; legs banded with white; head, thorax, and abdomen black.—Forewing black, a spot below cell, one in cell at apex, one patch between veins 4 and 5 and 5 and 6, and a spot beyond cell hyaline.—Hindwing black; a small central hyaline spot.

Length of forewing: 16 mm.

Hab. Hili Madjedja, North Nias, September—December 1895 (L. Z. Kannegieter), 1 ♀ (type); Pulo Nias (Dr. Fehr), 1 ♀; interior of Nias Island, 2 ♀ ♀.

Since the publication of Volume I. of the British Museum *Catalogue of Lepidoptera Heterocera* in 1901, it has been definitely ascertained, as Mr. Prout informed me, that *Amata* Fabr. was published in 1807, while *Syntomis* dates from 1808; therefore *Amata* must replace *Syntomis*.

13. *Amata tunneyi* sp. nov.

♂. This queer little species is near to nothing, but resembles *humeralis* Butl. somewhat in its short, broad, and rounded wings.

Antennae brown, strongly pectinated; legs, head, thorax, and abdomen orange.—Forewing semihyaline orange-buff, margins and a discocellular patch brown; there is a brown patch running in from outer margin between veins 2 and 3, and another from inner margin to edge of cell.—Hindwing orange with black-brown borders, a patch running into disc at vein 3.

Length of forewing: 11 mm.

Hab. Derby District, West Australia (Tunney).

4 ♂ ♂.

14. *Amata pembertoni* sp. nov.

♀. Antennae dull black, white tips; head, thorax, and abdomen dull black glossed with oily steel-green.—Forewing blackish steel-blue, a hyaline spot in cell and one below cell.—Hindwing blackish steel-blue with a hyaline spot below base of cell.

Length of forewing : 14 mm.

Hab. Cailulu, Angola (Pemberton).

1 ♀.

15. *Amata kalidupensis* sp. nov.

♂. Allied to *A. stenoxona* Hamps.; differs in having the antennae very strongly pectinated, head, pectus, and tegulae crimson, thorax black, and abdomen crimson with five narrow black rings.—The wings are narrower and more pointed, and the hyaline spots much smaller, except the one in cell and the one below it.

♀. Similar.

Length of forewing : 11 mm.

Hab. Kalidupa, Toekan Besi Islands, south-west of Celebes, January 1902 (H. Kühn).

1 ♂, 1 ♀.

16. *Amata jacksoni* sp. nov.

♀. Head, thorax, and abdomen brilliant metallic oil-green.—Wings most brilliant metallic blue : on forewing are six hyaline spots, one below base of cell, one in the cell, one below cell near origin of vein 2, one beyond apex of cell, one between veins 3 and 4, and one between veins 4 and 5 ; on hindwing there are two hyaline spots, one smaller subbasal spot and a larger one on disc.

Length of forewing : 20 mm.

Hab. Uganda (Jackson).

1 ♀.

17. *Amata stictoptera* sp. nov.

♀. Allied to *tomasina* Butl., but much smaller. Differs from that species in the very minute hyaline spots and much narrower bands on abdomen.

Length of forewing : 12.5 mm.

Hab. Bandoukan, Ivory Coast, February 22, 1903 (Pemberton).

2 ♀♀.

18. *Amata elwesi* sp. nov.

♂. Allied to *euryptera* Hamps. Antennae black ; head, abdomen, and thorax pale straw-yellow.—Forewing pale straw-yellow, veins and fringe very narrowly black.—Hindwing pale straw-yellow, fringe hardly a hairsbreadth black.

Length of forewing : 17 mm.

Hab. Burmah (Adamson) (coll. H. J. Elwes).

1 ♂.

19. *Amata snelleni* sp. nov.

♀. Antennae black, tips white ; frons, collar, and tegulae orange ; thorax deep brown streaked with orange ; abdomen deep brown with seven orange rings.—Forewing, basal three-fifths orange, a long patch in cell, a spot below it, and a dash between veins 2 and 3 deep brown, outer two-fifths deep brown, a patch beyond cell, one between veins 3 and 4 and 4 and 5 orange.—Hindwing orange with a very wide deep brown border, a wedge-shaped patch of same colour running into the orange from tornus, and a drop-like spot from costa.

Length of forewing : 16 mm.

Hab. East Java.

1 ♀.

20. *Amata quadripunctata* sp. nov.

♂. Frons and tegulae orange; thorax chocolate-brown with an orange dot on shoulders; abdomen chocolate-brown with six orange rings.—Forewing chocolate-brown with four orange spots, one below base of cell, one in cell, one below middle of cell, and a minute one on vein 4.—Hindwing chocolate-brown, orange at base.

Length of forewing: 12 mm.

Hab. Padang Sidempoean, West Sumatra (Ericsson).

1 ♂.

21. *Amata williami* sp. nov.

♂. Head and antennae black; thorax oily steel-green; abdomen steel-green, a basal reddish cinnamon belt, and one on fourth and fifth segments.—Forewing metallic blue-green, a hyaline patch below base of cell, one in cell, one between veins 1 and 2, one between veins 3 and 4 and 4 and 5, and one beyond apex of cell.—Hindwing hyaline with steel-green border and transverse central hour-glass-shaped band.

♀. Smaller.

Length of forewing: ♂ 14 mm.; ♀ 10.5 mm.

Hab. Kikuyu Escarpment, British East Africa, 6500—9000 ft., December 1900—January 1901 (W. Doherty).

29 ♂♂, 5 ♀♀.

22. *Amata connectens* sp. nov.

♀. Allied to *A. sladeni* Moore. Antennae brown; head yellow; thorax yellow, a longitudinal black streak on the patagia; abdomen yellow.—Forewing hyaline yellowish, tip, fringes, and nervures brown, vein 5 and discocellulars more broadly brown.—Hindwing hyaline yellowish, costa and fringe brown.

Length of forewing: 16 mm.

Hab. Bernardmyo, Burmah, 6000 ft., May 1890 (W. Doherty) (ex coll. Elwes).

1 ♀.

23. *Amata albicornis* sp. nov.

♀. Antennae, basal third black, rest white; head black; thorax black with central orange patch; abdomen black with a basal orange ring, three lateral orange patches, and an orange ring on fifth segment which does not meet dorsally.—Forewing black, apex with large white patch, a small hyaline spot below base of cell, a large one in cell, one below cell on vein 1 near tornus, one between veins 3 and 4, one between veins 4 and 5, and one between veins 6 and 7.—Hindwing black, a large treble hyaline spot below cell.

♂. Similar.

Length of forewing: 26 mm.

Hab. Manson Mountains, Tonkin, 3000 ft., April—May (H. Fruhstorfer).

3 ♂♂, 3 ♀♀.

24. *Amata leechi* sp. nov.

♀. This is the insect J. H. Leech identified as *acrospila* Feld. It differs from the type of *acrospila* by the brown, not black colour, by the much wider lemon-yellow bands of the abdomen, by the hyaline patches being yellow, not white, by the hyaline patch below base of cell extending to tornus and only divided into two by a very narrow brown band, by there being a large hyaline

patch between veins 6 and 7 as well as between 7 and 8, by there being two terminal yellow patches in place of one white one, and in the whole hindwing being hyaline edged with brown, not merely the basal half.

♂. Differs from ♀ by having one terminal spot only, and the hyaline patch between veins 7 and 8 much smaller.

Hab. Washau, West China, 6000 ft., July 1889 (A. E. Pratt).

1 ♀ (type), 5 ♂♂.

25. *Amata jankowskyi* sp. nov.

♂. Nearest to *A. pascua* Leech; differs at first sight by its much shorter, broader, and rounder wings. Pectus golden, not brown; frons black, not golden; tegulae golden, not brown; centre of thorax deep brown, not golden; a broad orange band encircling base of abdomen, not a yellow dorsal spot only; an orange band round last abdominal segment, which is wanting in *pascua*; the hyaline spots on forewing are more vitreous and white, not buff; more than two-thirds of hindwing are hyaline. Antennae have only extreme tip white, while in *pascua* two-fifths of the whole are white.

♀. Similar, but abdominal orange bands are broader and the hyaline spots larger.

Length of forewing: ♂ 22 mm.; ♀ 24 mm.

Hab. Ichang, Yangtse-Kiang River, China (Captain Jankowsky).

2 ♂♂, 1 ♀.

26. *Amata flavolavata* sp. nov.

♀. Nearest *A. melaena* Wlk., but distinguishable at once by the last abdominal segment being orange, and not blue-black as in *melaena* and *melaena andersoni*. Frons orange; tegulae and patagia orange; thorax black, orange at hind edge; antennae **entirely** black; abdomen bright orange with five black rings.—Forewing hyaline orange-yellow, costal area between costal and subcostal nervures with basal three-fifths orange-yellow, area between vein 1 and inner margin orange, a black patch on discocellulars, apex and outer margin narrowly black, nervures black, veins 4 and 5 stalked.—Hindwing hyaline orange-yellow, outer margin and nervures black.

Length of forewing: 27 mm.

Hab. Khasia Hills (Native coll.) (ex coll. H. J. Elwes).

1 ♀.

27. *Amata simillima* sp. nov.

♀. Allied closely to *A. basigera* Wlk., but larger and much broader. Differs in the hyaline markings of forewings being more clothed with scales and much larger, and the spot between veins 7 and 8 which is present in *basigera* being absent.—Hindwings have only the base orange, and two very narrow hyaline streaks below and beyond cell.

Length of forewing: 15.5 mm.

Hab. Pulo Bisa, north of Obi Island, Moluccas, September 1897 (W. Doherty).

1 ♀.

28a. *Amata basigera gilolensis* subsp. nov.

♂. Differs from *basigera basigera* in the two hyaline spots in the hindwing being reduced so much as to be scarcely visible.

♀. Differs in having the whole hindwing orange with a narrower brown margin.

Hab. Gani, Halmaheira, Moluccas, November 1896 (W. Doherty), 3 ♂♂, 4 ♀♀; Halmaheira (Waterstradt), 3 ♂♂, 3 ♀♀. Type ♀ Halmaheira (Waterstradt).

29a. *Amata perixanthia sinensis* subsp. nov.

♂. Differs from *perixanthia perixanthia* Hamps. from Formosa by its larger size; by the yellow, not orange, frons, tegulae, and patagia; by the narrower yellow, not orange, abdominal rings; by the broad pale yellow scaled edges of the hyaline and subcostal areas, and the antennae having the apical one-fifth white, not being entirely black as in *p. perixanthia*.

Length of forewing: *perix. perixanthia*, ♂ 19 mm.; ♀ 19 mm.

 " " " *perix. sinensis*, ♂ 24 mm.; ♀ 27 mm.

Hab. Kwei-chon, West China, July 6, 1890 (A. E. Pratt), 18 ♂♂, 11 ♀♀; 2 ♂♂ no locality; Moupin, West China, June 1890 (Kricheldorf), 107 ♂♂, 47 ♀♀.

30. *Amata fruhstorferi* sp. nov.

♀. Allied to *A. signata* Wlk. Differs by the white, not orange, frons; by the entirely black thorax, tegulae, and patagia; by it having only three orange abdominal rings (one at base, one on segment 3, and one on segment 8), instead of six. On the forewing the hyaline patch between veins 2 and 3 is half as long as that between veins 3 and 4, while in *signata* they are equal in length.

♂. Similar, but with smaller hyaline markings.

Length of forewing: ♂ 18 mm.; ♀ 22 mm.

Hab. Mauson Mountains, Tonkin, 3000 feet, April and May (H. Fruhstorfer). 2 ♀♀, 3 ♂♂. ♀ type.

31. *Amata khasiana* sp. nov.

♀. Frons black; collar orange; antennae black, tips white; thorax black; abdomen black with six orange-yellow bands.—Forewing black-brown, a semihyaline yellowish buff patch below base of cell, one towards apex of cell, one between veins 1 and 2, one between veins 3 and 4 and 4 and 5, one between 6 and 7, and a small one between 7 and 8.—Hindwing black-brown with two large buff semihyaline patches.

Length of forewing: 17 mm.

Hab. Khasia Hills, Assam, June 1894 (Native coll.).

1 ♀.

32. *Amata pseudextensa* sp. nov.

♀. Frons white; antennae sooty brown, last two segments white; collar very narrowly buffy yellow; thorax sooty black-brown; abdomen sooty black-brown, basal and fifth segment lemon-yellow.—Forewing sooty black-brown, a large hyaline creamy patch reaching from below base of cell and vein 1 to origin of vein 2, when it curves obliquely between veins 1 and 2 to tornus; in the centre of this patch are two sooty spots; between veins 2 and 3 is a small creamy hyaline patch, and two larger ones between veins 3 and 4 and 4 and 5, and a very long one between 6 and 7; a large similar patch occupies the apical two-thirds of cell.—Hindwing, basal three-quarters creamy hyaline, apical fourth sooty black-brown.

Length of forewing : 22 mm.

Hab. Mount Kina Balu, North Borneo.

2 ♀ ♀.

33. *Amata nigrobasalis* sp. nov.

♂. Frons white; antennae black-brown, cinnamon at the tips; thorax and abdomen black.—Forewing black strongly washed with oil-green, a hyaline patch in cell, one below cell resting on vein 1, one between veins 3 and 4 and 4 and 5, and one between 6 and 7 and 7 and 8.—Hindwing black, a white patch on inner area.

Length of forewing : 14 mm.

Hab. Cape Coast Castle, West Africa.

1 ♂.

A ♀ from Kampala, Uganda, April 1900 (Captain H. Rattray), differs only in having the frons black and a minute dot at apex of cell of hindwing white.

34. *Amata kenredi* sp. nov.

♀. Antennae black tipped with white; head, thorax, and abdomen blackish oil-green.—Forewing long and pointed, greenish purple; a hyaline spot below base of cell, a second larger between cell and vein 1, a similar patch at apex of cell, a larger patch between veins 4 and 5, a smaller one between 5 and 6, and a hyaline dot between veins 7 and 8.—Hindwing greenish purple, a hyaline patch near base of inner area and one at apex of cell.

Length of forewing : 20 mm.

Hab. Bopoto, Upper Congo (Rev. Kenred Smith).

1 ♀.

35. *Amata everetti* sp. nov.

♀. Antennae brown; head, tegulae, and patagia orange; thorax deep brown; abdomen black with six orange rings.—Forewing black-brown, cell entirely hyaline, area between cell and vein 1 curving along vein 2 almost to tornus, also hyaline, a black spot on discocellulars, from tornus between veins 1 and 2 half-way to origin of vein 2 a black-brown patch, a similar patch between veins 2 and 3 leaving a hyaline space half-way from base of these veins to outer margin, apical sixth dark brown, a patch of same colour running in between veins 5 and 6 half-way to discocellulars, nervures dark brown.—Hindwing hyaline with irregular dark brown margin.

Length of forewing : 16 mm.

Hab. South Flores, November 1896 (dry season) (Everett).

1 ♀.

36. *Amata vandepolli* sp. nov.

♂. Frons white; antennae black, apical fourth white; tegulae white; thorax black; abdomen brown-black glossed with bright violet, two latero-dorsal white patches on basal and a white band on fifth segment.—Forewing bronzy black-brown, a hyaline patch between cell and vein 1, a similar one about a third from apex of cell, one between veins 3 and 4, a smaller one between 4 and 5, and a still smaller one between 7 and 8.—Hindwing bronzy black-brown, a subbasal and a discal hyaline patch.

Length of forewing : 18 mm.

Hab. Padang Pandjang, Padang Bovenlanden, West Sumatra.

1 ♂.

37. *Amata henrici* sp. nov.

♀. Frons black; antennae black, apical fifth white; collar crimson; thorax and abdomen oily steel-green, a crimson dorsal patch at base of abdomen, abdominal tuft fawn-colour.—Forewing oily steel-green, a hyaline patch in cell, and a minute hyaline dot between veins 3 and 4 and 4 and 5.—Hindwing oily steel-green.

♂. Similar, but lacks the hyaline intranenal dots.

Length of forewing: ♀ 14 mm.; ♂ 11 mm.

Hab. Dammer Island, December 15—20, 1898 (H. Kühn), 3 ♂♂, 3 ♀♀ (♀ type); Letti Island, July 1892 (W. Doherty), 2 ♂♂, 3 ♀♀; 2 ♂♂, 1 ♀, Timor Laut Islands, June—July 1892 (W. Doherty); 2 ♂♂, Sermatta Island (H. Kühn); 3 ♂♂, 1 ♀, Larat Island, Timor Laut Islands, January—February 1901 (H. Kühn).

2 ♀♀ from Letti and 1 ♀ from Dammer have a hyaline spot in disc of hindwing and the spots on forewing larger.

38. *Amata attenuata* sp. nov.

♂. Allied to *chryxona* Hamps., but at once distinguished by its long narrow wings. Frons black; antennae black, apical fifth white; collar orange; thorax bronzy oil-brown; abdomen bronzy oil-brown, an orange ring at base and on fifth segment, and a lateral orange band joining these two rings.—Forewing bronzy brown, a hyaline oval patch below base of cell, a large quadrate one occupying apical half of cell, a diamond-shaped one below cell between vein 1 and origin of vein 2, one between veins 3 and 4 and 4 and 5, and between veins 7 and 8.—Hindwing bronzy brown, a subbasal hyaline patch with the third nearest the abdominal margin orange, a discal round hyaline patch.

♀. Similar, but wings shorter and broader.

Length of forewing: ♂ 16 mm.; ♀ 14 mm.

Hab. Kikuyu Escarpment, 6500—9000 ft., October—November 1900 (W. Doherty).

23 ♂♂, 6 ♀♀ (♂ type).

39. *Eressa dohertyi* sp. nov.

♂. Allied to *E. farra* Hamps., but at once distinguishable from that species by its deep black-brown, not reddish cinnamon colour, and by the abdomen being broadly ringed with orange, not having a dorsal row and infra-lateral rows of orange dots. In the ♂ the hyaline spots are smaller.

♀. Differs from ♀ *E. farra* in the ground-colour of the wings being mouse-grey, not cinnamon; the hyaline spots on forewings are larger and more ill-defined, on the hindwings the hyaline area occupies five-sixths of the wing. *E. dohertyi* in both sexes is also larger.

Length of forewing: *dohertyi*, ♂ 15.5 mm.; ♀ 19 mm.

" " " *farra*, ♂ 13 mm.; ♀ 15 mm.

Hab. Adonara, Lesser Sunda Islands, November 1891 (W. Doherty).

5 ♂♂, 4 ♀♀ (♂ type).

40a. *Eressa confinis malaccensis* subsp. nov.

♂. Differs from *E. confinis confinis* in its smaller size, more clay-brown, not grey ground-colour, and pure white hyaline markings. On the forewings the

hyaline patches are smaller, shorter, and much more separated, while the hindwing has the hyaline area extended over five-sixths of the wing.

Length of forewing : *malaccensis*, ♂ 12 mm. ; ♀ 15 mm.

" " " *confinis*, ♂ 16.5 mm. ; ♀ 17.5 mm.

Hab. Waterfall Valley, Penang, March—April 1898 (Curtis), 3 ♂♂ (type) ; Chiem-Hoa, Central Tonkin, August—September (H. Fruhstorfer), 1 ♀.

40b. *Eressa confinis intensa* subsp. nov.

♂. Colour of wings and body deep chocolate-brown ; hyaline spots on both wings much reduced ; orange markings on thorax and the dorsal and lateral rows of orange spots on abdomen very small.

Size large.

Length of forewing : 15.5 mm.

Hab. Belgaum, India, June 1896.

1 ♂ (1 pair in British Museum collection).

41a. *Eressa aperiens khasiana* subsp. nov.

♂. Differs from *aperiens aperiens* in its much blacker colour ; also the base of forewing and dark markings of forewings are much more conspicuous owing to the reduction in size of the hyaline patches.—Hindwing entirely black, a small hyaline spot near tornus.

Hab. Khasia Hills, Assam, May 1894, August—September 1895 (Nat. coll.).

4 ♂♂.

A fifth ♂ from the low country, Cherrapunji, Assam, is not so black, and the hyaline spot on hindwing is larger.

42. *Eressa vespoides* sp. nov.

♂. Differs from *vespa* Hamps. in the broader and deeper orange markings of the head, thorax, and abdomen, the more serrated antennae, and the shorter and broader forewings, which are also less pointed at apex. The costal area is not wholly dark as in *vespa*, but the basal three-fifths are vitreous. In *vespa* the space between veins 2 and 3 is filled in with a large patch of black joining the cell and discocellular patch to the outer margin just above tornus ; in *vespoides* this spot is entirely absent. The dark margins and nervures on both wings are also much narrower than in *vespa*.

♀. Similar.

Length of forewing : 12 mm.

Hab. Khasia Hills, Assam, September 1895 (Nat. coll.).

2 ♂♂, 1 ♀.

43. *Eressa ichneumoniformis* sp. nov.

♂. Similar to *vespoides*, but larger ; all the markings on head, thorax, and abdomen very narrow and pale lemon-yellow. The margins of the fore- and hindwings very much narrower, and the black bar between veins 4 and 5 joining the discocellular patch to the outer margin is absent.

The ♀ has vein 6 bifurcated.

Length of forewing : ♂ 13.5 mm. ; ♀ 14.5 mm.

Hab. Khasia Hills, Assam, May 1894.

1 ♂, 1 ♀.

44. *Eressa simplex* sp. nov.

♂. Head brown-black; collar yellow; antennae black; thorax black; abdomen brown-black with dorsal and lateral rows of yellow patches.—Forewing brown-black; a long hyaline band from base of cell along vein 1 to half-way along vein 2, a wedge-shaped hyaline patch in cell, a hyaline patch between veins 3 and 4 and 4 and 5, and one between 6 and 7.—Hindwing: basal half hyaline, apical half brown-black.

Length of forewing: 13 mm.

Hab. Subathu, India, July 1889.

1 ♂.

45. *Eressa everetti* sp. nov.

♀. Head, thorax, and abdomen pale yellow, centre of thorax and five narrow abdominal rings pale brown; antennae fuscous, tips white.—Forewing opaline iridescent hyaline, apex and margins brown, discocellular patch and a patch between veins 2 and 3 brown, veins 3 and 5 broadly brown.—Hindwing opaline iridescent hyaline, margins very narrow brown.

♂. Similar.

Length of forewing: 15 mm.

Hab. Tutong, North Borneo, May 1895 (A. Everett), 1 ♀ (type); Bauguran Natuna Islands, July—October 1894 (Hose), 2 ♂♂.

46. *Neeressa whiteheadi* sp. nov.

♂. Very much larger than *N. sagada* Semper. Frons white; antennae black; thorax buffish; abdomen cream-colour with six narrow brown rings.—Forewing pale chocolate, slightly semihyaline, a longitudinal dark brown band from base through cell to apex, basal half of costal area yellow.—Hindwing pale chocolate, rather more semihyaline than forewing, costal area yellow.

Length of forewing: 19 mm.

Hab. Lepanto, North Luzon (John Whitehead), 1 ♂ (type); North Luzon, 5000—6000 ft. (John Whitehead), 2 ♂♂.

47. *Hyalæthea kuehni* sp. nov.

♂. Allied to *bivittata* Hamps. Frons and antennae black; legs orange; vertex, thorax, and abdomen bronzy steel-green.—Forewing brilliant deep purple, a vitreous hyaline patch below base of cell; a very large vitreous hyaline patch occupies apical two-thirds of cell; basal half of hindmargin orange.—Hindwing: basal half orange, apical half deep brilliant purple.

♀. Similar.

Length of forewing: ♂ 13 mm.; ♀ 14 mm.

Hab. Larat Island, January 1901 (H. Kühn).

1 ♂, 1 ♀.

48. *Hyalæthea meeki* sp. nov.

♂. Similar to *woodfordi* Butl., but much smaller; hyaline areas of forewings larger; hindwings have only costal and basal areas orange, rest of wing hyaline, costal margin orange, not brown, outer margin from tornus to termen brown, not orange.

♀. Shows same differences, but has only base of hindwing orange.

Length of forewing: *meeki*, ♂ 13 mm.; ♀ 15 mm.

" " *woodfordi*, ♂ 15 mm.; ♀ 17 mm.

Hab. Guadalcanar, Solomon Islands, April 1904 (A. S. Meek).

2 ♂♂, 4 ♀♀; 2 ♀♀(?).

49. *Hyalæthea dohertyi* sp. nov.

♂. Frons white; antennae black; thorax black, base of patagia white; abdomen black, base and two subdorsal rows of spots white.—Forewing purple, central two-thirds of cell hyaline yellow; a hyaline yellow patch between vein 1 and cell from base to origin of vein 2, a hyaline spot beyond apex of cell, and a hyaline dot on each side of vein 4.—Hindwing purple, a hyaline spot on inner area.

Length of forewing: 15 mm.

Hab. Humboldt Bay, Dutch New Guinea, September–October 1893 (W. Doherty).

2 ♂♂.

50a. *Hyalæthea metaphæa georgiensis* subsp. nov.

♂. Differs from *metaphæa metaphæa* by the wider dark markings in the wings and the almost absent lateral yellow bands on abdomen.

♀. Similar, but orange base of abdomen broader than in *m. metaphæa*.

Hab. New Georgia, Solomon Islands, March 1904 (A. S. Meek).

1 ♂, 2 ♀♀.

51. *Hyalæthea decipiens* sp. nov.

♂. Near *metaphæa* Druce, but differs in the narrower hyaline patches, the almost entirely black tornal lappet on hindwing, the brownish buff, not black, front of legs, and the almost entirely black abdomen.

Length of forewing: 15 mm.

Hab. New Georgia, Solomon Islands, March 1904 (A. S. Meek).

2 ♂♂.

52. *Hyalæthea alberti* sp. nov.

♂. Differs from *metaphæa* Druce in having the hyaline patches on forewing shorter, in having base of hindwing orange, and in having five complete orange rings on abdomen and hindpart of thorax black.

♀. Similar.

Length of forewing: ♂ 16 mm.; ♀ 18 mm.

Hab. Vella Lavella, Solomon Islands, February 1908 (A. S. Meek).

5 ♂♂, 2 ♀♀.

Pseudoceryx gen. nov.

Differs from *Hyalæthea* in having in forewing vein 2 from end of cell, veins 3, 4, and 5 on a long stalk and vein 6 from end of cell, veins 7 and 8 on a long stalk, and 9 absent.

53. *Pseudoceryx dohertyi* sp. nov.

♀. Antennae black; head and thorax deep blue, a dot on frons, a spot on each shoulder, and a patch on hinder part of thorax white; abdomen brilliant deep blue, two lateral rows of tiny white dots.—Forewing deep blue, excised deeply at outer margin between veins 2 and 5, a large hyaline patch in cell, a large curved long

similar patch from base of wing along vein 1 almost to tornus, and one on each side of vein 3.—Hindwing deep blue, a hyaline spot below base of cell.

Length of forewing: 18 mm.

Hab. Biak Island, Geelvink Bay, Dutch New Guinea (W. Doherty).

1 ♀.

54. *Epitoxis ansorgei* sp. nov.

♀. Head and thorax black; antennae black, tips white; abdomen oily steel-green, a basal patch and segments 3 and 4 dark orange-buff.—Forewing steel green, a quadrate hyaline patch in cell, one below cell, one between veins 3 and 4, one between veins 4 and 5, and one between veins 7 and 8.—Hindwing black, a large creamy hyaline patch below base of cell and a large hyaline white one on disc.

♂. Similar, but segments 3, 4, and 5 are reddish buff.

Length of forewing: ♂ 15 mm.; ♀ 18 mm.

Hab. Mruli, Unyoro, May 16, 1897 (Dr. Ansorge).

1 ♂, 1 ♀; ♀ type.

55a. *Pseudonacalia puella minor* subsp. nov.

♂. Differs from *puella puella* in its much smaller size and in the four hyaline patches of the forewing being reduced to small round dots.

♀. Is also much smaller, and the four hyaline patches are equal in size and about half the size of the largest patch in *p. puella*.

Length of forewing: *puella minor*, ♂ 10 mm.; ♀ 12 mm.

" " " *puella puella*, ♂ 13 mm.; ♀ 15 mm.

Hab. Kikuyu Escarpment, British East Africa, 6000—9000 ft., March 1901 (W. Doherty).

56. *Dysauxes punctata kaschmiriensis* subsp. nov.

♂. Differs from *punctata punctata* in its larger size and broader wings. The hyaline white spots are larger and more conspicuous, and the brown margin of hindwings is much broader.

♀. Similarly distinguished from ♀ *punctata punctata*.

Hab. Gourais Valley, Kaschmir, 7000 ft., June 1887 (John Henry Leech).

5 ♂♂, 8 ♀♀.

57. *Apisa aurantiaca* sp. nov.

♂. Palpi orange; head orange; thorax orange; antennae fuscous; abdomen orange, dorsal line and last three segments clay-grey.—Forewing, basal three-fifths orange, apical two-fifths clay-grey.—Hindwing, basal three-fourths pale orange, outer fourth clay-grey.

Length of forewing: 16 mm.

Hab. Kassai District, Congo Free State (Taymans), 1 ♂ (type); Bitye, Ja River, Camaroons, 2000 ft., January—March 1907 (dry season) (G. L. Bates), 1 ♂.

58. *Apisa rendalli* sp. nov.

♂. Allied to *canescens* Walk. Resembles small ♂♂ of *canescens*, but the forewings are shorter and broader and termen is more rounded. Uniform clay-brown.

Length of forewing: 14 mm.

Hab. Zomba, Upper Shiré River, 3000 ft., October—December 1895 (Dr. Percy Rendall).

3 ♂♂.

59. *Apisa subcanescens* sp. nov.

♂. Antennae buffy clay; head, thorax, and abdomen silvery mouse-grey.—Forewing, costa and fringes mouse-grey, nervures grey, rest of wing semihyaline white.—Hindwing semihyaline white, abdominal margin to tornus pale grey.

♀. Similar, but much larger. In *canescens* Walk. the ♀ is not much more than half the size of the largest ♂♂.

Length of forewing: ♂ 15 mm.; ♀ 22 mm.

Breadth " ♂ 9 mm.; ♀ 15 mm.

Length of forewing large *canescens*: ♂ 36 mm.; ♀ 25 mm.

Breadth " " " ♂ 24 mm.; ♀ 15 mm.

60. *Metarctia taymansii* sp. nov.

♂. Near to *haematoessa* Holl. Legs inside and in front crimson; palpi and head brown; antennae brown, paler towards the tips; thorax and abdomen light earth-brown.—Forewing pale buff, all nervures, costal and inner areas earth-brown, a large patch of earth-brown on discocellulars and another at base of wings, intranervular spaces splashed and clouded with earth-brown, a submarginal row of semilunar earth-brown spots.—Hindwing pale buff washed with salmon.

Length of forewing: 25 mm.

Hab. Kassai District, Congo Free State (Taymans).

1 ♂.

61. *Metarctia erlangeri* sp. nov.

♀. Antennae black; head and thorax bright orange brick-red; abdomen bright orange brick-red, with black bands on interspaces of segments.—Forewing salmon-cinnamon, fringe yellowish salmon.—Hindwing yellowish cinnamon salmon-pink.

♂. Differs in the abdomen being more orange; the costa of forewing bright salmon-red, the fringe salmon washed with cinnamon-brown; the hindwing is bright salmon-pink.

Length of forewing: ♂ 18–22 mm.; ♀ 30 mm.

Hab. Djedda to Sibbe, Arussi Galla Country, Abyssinia, 2900 metres, July 28, 1900 (Erlanger & Neumann), 1 ♀ (type); Muhumbua, Cumbo River to Cughu River, September 18, 1903 (Dr. Ansorge), 1 ♂; Bulabula, Bihé, Angola, October 2, 1904 (Dr. Ansorge), 1 ♂.

62. *Pseudapiconoma affinis* sp. nov.

♂. Allied to *daphaena* Hamps.; differs in the forewings being much rounder at termen and much broader, in the basal half of hindwings being semihyaline white, in the intranervular spaces and costal area of forewings being crimson, and in there being four complete scarlet rings on abdomen.

Length of forewing: *daphaena* ♂ 20 mm.

Breadth " " " 13 mm.

Length " *affinis* ♂ 19 mm.

Breadth " " " 14 mm.

Hab. Kassai District, Congo Free State (Taymans), 1 ♂ (type); Stanley Pool to Lokolele, Congo River, 1894 (Rev. Harrison), 1 ♂.

63. *Pseudapiconoma batesi congoensis* subsp. nov.

♀. Differs from *batesi batesi* Druce by the earth-brown, not orange, head and tegulae, the duller orange abdomen, the duller, more earth-brown forewings, the brown, not crimson, subcostal nervure, and the much smaller of the yellow red-ringed patches on the forewings.

♂. Does not differ from ♂ *batesi batesi*.

Hab. Luebo Kassai, Congo, October 1903 (Landbeck), 1 ♀ (type); Yakusu, Upper Congo (Kenred Smith), 2 ♂♂ : Bopoto, Upper Congo (Kenred Smith), 1 ♂ : Kassai District, Congo (Taymans), 1 ♂ ; south of Congo River (Bentley), 1 ♂.

64. *Pseudapiconoma batesi ugandae* subsp. nov.

♀. Differs from *batesi congoensis* in the olive-brown colour of the forewings, head, and thorax, and in there being a red-ringed yellow spot on vein 3 and a red one on vein 4.

♂. Differs from the ♂♂ of *batesi batesi* and *batesi congoensis* in the uniform rufous orange or orange-rufous head, thorax, and abdomen, and in the much smaller red-ringed yellow patches on the forewings.

Hab. Entebbe, Uganda (F. J. Jackson), 1 ♀ (type), 2 ♂♂ ; Entebbe, Uganda, November 1902 (Captain Rattray), 1 ♂.

65. *Pseudapiconoma coeruleifascia* (Walk.).

This insect was erroneously retained in *Meturctia* by Sir George Hampson. It has the normal ♂ of a *Pseudapiconoma*, with short broad forewings and very small hindwings. The undescribed male is as follows :—

♂. Pectus, tibiae, and coxae crimson ; head crimson ; antennae black ; thorax and abdomen orange-scarlet.—Forewing earth-brown, a crimson streak at base of subcostal and one below base of vein 1, a large orange-scarlet patch with darker edges between vein 1 and the origin of vein 2, a crimson dot on vein 2, a crimson spot in centre of cell and a patch at apex of cell, and a crimson spot on subcostal edge between veins 6 and 7.—Hindwing orange, costa and abdominal area orange-scarlet.

Length of forewing : ♂ 29 mm.

Breadth „ „ „ 19 mm.

Length of hindwing : ♂ 11 mm.

Breadth „ „ „ 8 mm.

Hab. of ♂ described : Moyambe, Sierra Leone, March 1903 (bred) (D. Cator).

The Tring Museum has 5 ♀♀ from Sierra Leone collected by Mr. Mitford, Captain Stevens, and Major Bainbridge.

66. *Pseudapiconoma ehrmanni* Holl.

This has been wrongly treated by Sir George Hampson as a synonym of *coeruleifascia* Walk. ; it is quite distinct, as the ♂ proves. Description of ♂ is as follows :—

♂. Forelegs yellowish clay-grey ; pectus and head crimson ; tegulae, basal half

yellowish clay-grey, outer half reddish orange; patagia reddish orange; thorax yellowish clay-grey spotted with orange; abdomen reddish orange.—Forewing, basal half clayish mouse-grey, apical half ochraceous orange, nervures clayish mouse-grey; costa, basal two-thirds clayish mouse-grey, apical one-third ochraceous orange; subcosta, basal half crimson, outer half ochraceous; basal two-fifths of inner area (area between vein 1 and hindmargin) scarlet-orange; an ochraceous orange patch in apex of cell, another between vein 1 and origin of vein 2, a greyish cloud between subcosta and vein 3 half-way between apex of cell and termen.—Hindwing orange-salmon.

Hab. of ♂♂ described: Wassan District, forty-five miles inland from Sekondi, Gold Coast.

The 3 ♀♀ in Tring Museum are from Kwahen, Guinea, June 1901, Sierra Leone, and Luebo Kassai, Congo, 1903 (Landbeck).

67. *Metapiconoma rattrayi* sp. nov.

♂. Allied to *M. ochracea* Walk.; antennae black; tarsi and tibiae pale mouse-grey; pectus and frons crimson, vertex orange; tegulae and patagia mouse-grey edged with orange; thorax pale mouse-grey with hind edge and two longitudinal bands orange; abdomen Indian yellow, intersegmental spaces pale slate-grey.—Forewing, basal three-fourths mouse-grey, outer fourth Indian yellow, costa and nervures pale mouse-grey, basal two-fifths of subcostal crimson, a crimson splash on vein 1 one-third from base, an Indian-yellow patch at apex of cell and an obliquely transverse row of six such patches between veins 1 and 7.—Hindwing Indian yellow.

♀. Head pale crimson; thorax as in ♂; abdomen orange with pale crimson base and broad intersegmental slate bands.—Forewing dark fawn-colour or fawn-brown, an ill-defined orange spot in cell, a hyaline spot ringed with pale orange between veins 1 and 2, and four similar larger ones between veins 3 and 7, basal seventh of subcostal crimson, and basal third of inner area orange and scarlet, a faint broad submarginal rufous band.—Hindwing, basal third rosy crimson, outer two-thirds orange-buff.

Length of forewing: ♂ 26 mm.; ♀ 31 mm.

Hab. Entebbe, Uganda, September 1901—November 1902 (Captain Rattray), 6 ♂♂ (type), 1 ♀; Kurunga, Kyanika, Bulamwezi, March 30, 1897 (Dr. Ansorge), 1 ♂; Weni, River Toru, April 21, 1899 (Dr. Ansorge), 1 ♂.

68. *Pseudapiconoma preussi* Auriv.

Pseud. speculigera Grünberg is the ♀ of *Pseud. preussi* Auriv., as is easily seen by the abdomen in the figure, which is described as follows: "each segment from 2–6 bright rust-red with fore and hind margin broadly brown-grey." Now none of the other *Pseudapiconoma* except *preussi* have the red segments with a double grey border, and *preussi* is only known in the ♂ sex and *speculigera* only in the ♀ sex. Moreover, *preussi* has an outer row of five semihyaline spots, while the other ♂♂ only have two; the first ♀ *speculigera* has six spots and the second has five, while all other ♀ *Pseudapiconoma* have only four. It is therefore quite clear that *speculigera* is the ♀ of *preussi*.

69. *Pseudapiconoma vitreata* sp. nov.

This species is quite distinct from *fenestrata* Jord.

♀. Legs, head, antennae, and thorax very dark russet-brown; abdomen very dark russet-brown, two dorsal and one lateral line of black spots on intersegmental spaces.—Forewing excised at termen, basal and apical fourths dark russet-brown, rest of wing very clear hyaline, a very large discocellular patch, a smaller one between veins 7 and 8, and costa dark russet-brown.—Hindwing hyaline with broad deep russet-brown margin, cell semihyaline russet-grey.

Length of forewing: 33 mm.

Hab. ?

1 ♀.

NOTES ON SEA ELEPHANTS (*MIROUNGA*).

By THE HON. WALTER ROTHSCHILD, PH.D.

(Plates VIII. and IX.)

THE Sea Elephants or Elephant Seals (*Mirounga*) have always interested me, both from their curious distribution as well as on account of their rapidly approaching extermination.

The immediate incentive for publishing the accompanying plates was the acquisition of the magnificent specimen of the Southern form (*Mirounga patagonica* Gray) from the Falkland Islands figured on Plate IX.

In the *Proceedings of the Zoological Society*, 1909, pp. 601—606, Mr. R. Lydekker has divided the Sea Elephants (*Mirounga*) into two species, one of which he divides into three distinct and one doubtful subspecies. In a footnote on page 606 he draws attention to certain facts furnished him by myself which alter somewhat his conclusions. In the same journal for 1910, pp. 580—588, Professor Einar Lönnberg, while maintaining his belief in the subspecific distinction among the Sea Elephants, proves by the comparison of a number of South Georgia Sea Elephant skulls that the cranial characters on which Mr. Lydekker relies are too variable to have any diagnostic value. This being the case I shall endeavour to find some constant characters and give a key to species and subspecies in a future article.

When Mr. Harris reported the existence of the small herd of the Northern Sea Elephant on Guadaloupe Island, and I requested him to procure specimens, he made me, to me, startling announcement that he must reach the island before the middle of May or the Sea Elephants would have migrated to the south. I looked up the matter, and I found that, although a few stray individuals might formerly have led a pelagic life north of the Equator, the bulk of the Northern Sea Elephants migrated in the hot weather to the Chilean coast and the islands near (Juan Fernandez, Masafuera, etc.). As Linnaeus based his *Phoca leonina* on Lord Anson's specimen brought in 1744 from the island of Juan Fernandez, the name must be retained for the Northern Sea Elephant, and, in spite of Mr. Lydekker's objection that the name is based on an immature specimen and therefore the diagnosis is faulty and insufficient, Gray's name of *patagonica* must stand for the Southern Sea Elephant.

Unlike Mr. Lydekker, I consider the Northern Sea Elephant also only

subspecifically separable from the Southern forms. The comparison of Mr. Harris's largest bull from Guadaloupe Island with my Falkland Island specimen, two or three Macquarie Island specimens, and two or three Crozet Island individuals makes it at once apparent, as is also shown in photographs from life, that the proboscis of the Northern Sea Elephant is much longer than in the Southern races. This is especially remarkable in young bulls. A Northern bull at Tring, 11 ft. 4 in. long, has a trunk $3\frac{1}{2}$ —4 in. long, while a 12-foot bull from the Macquaries has no sign of a trunk. The trunk, however, was apparently very fully developed in the extinct Bass Straits race, and is also longer in the Macquarie form than in the Crozet and Falkland races.

The measurements of my Falkland Island bull are by far the largest of any preserved Sea Elephant in collections, its total length over the curve being 21 ft. From what I can gather from my examination of material the following forms will eventually be distinguishable :—

1. *Mirounga leonina leonina* (Linn.).

Coasts of California and adjacent islands (wintering on Chilean coasts).

2. *M. leonina patagonica* Gray.

Falkland Islands, S. Georgia, and ? S. Shetlands.

3. *M. leonina kerguelensis* (Peters) = *M. l. crozettensis* Lyd.

Herd Island, Kerguelen Island, Crozet Islands, etc.

4. *M. leoninus peronii* Gray.

Islands of Bass Straits (extinct).

5. *M. leoninus macquariensis* Lyd.

Macquarie Islands.

EXPLANATION OF PLATES.

Plate VIII.

Mirounga leonina leonina (Linn.).

Guadaloupe Island, California.

Plate IX.

Mirounga leonina patagonica Gray.

Falkland Islands.

LIST OF THE *SPHINGIDAE* COLLECTED BY THE LATE
W. HOFFMANN AT ALLIANCA, RIO MADEIRA,
AMAZONAS.

BY THE HON. L. W. ROTHSCILD AND K. JORDAN.

WHEN out collecting one night in November 1907 at Allianca, which lies a short distance below S. Antonio, Rio Madeira, the late Wilhelm Hoffmanns passed a locality which is under water during the wet season, but at that time of the year was dry, except for some pools of water in the depressions of the ground. His attention was arrested by a number of moths hovering over the pools. The moths proved to be Sphingidae, and W. Hoffmanns at once started to make good use of the opportunity accidentally discovered. He visited the locality almost night after night, often staying nearly till daybreak in the very unhealthy place, and thus obtained a remarkably good collection of about 2500 specimens of Hawkmoths during several weeks of night-collecting in November and December. The following extract (translated) from Hoffmanns's letter refers to this collection :—

"November 25, 1907.—Allianca lies on high ground on the eastern side of the Rio Madeira above the mouth of the Rio January. This 'terra firma' is traversed by a narrow swamp, called 'Japôr.' When out there one night at 6 o'clock I observed Sphingidae over the pools, and since then I have been very busy every night catching Hawkmoths. So far I have obtained about 1500 specimens, but hope to get 2000. All have to be caught with the net, and I have been at it every night as late as 1, 2, or 3 o'clock. When the sun rises all must be put out to dry. It means a very great deal of work. I must remain with the specimens, as there are many enemies here who would play havoc among them, above all the rain, which may descend any minute, then pigs, fowls, mules, ants, etc. My weight is now as low as 114 pounds, and I have always a little fever, probably owing to the dampness in the swamp. This being the first time during all my travels that I have met with such an opportunity, I am so enthusiastic that nothing will prevent me from going on with the work, although my legs ache from jumping about so much. Of course, I am obliged to catch every specimen, as it is impossible to recognize anything on the wing and in the darkness. I get consequently of many species long series. The collection, no doubt, will interest you, and I should be very glad if you found good species in it. There are but few butterflies here. No trace of *Papilio hahneli*.

"November 26.—The rain has interrupted collecting. To-day I obtained for the first time a splendid specimen of one of the larger species.* It is really an Eldorado for Sphingidae. Unfortunately I cannot stay here much longer. The steamer which is to take me down to Marmellos leaves on December 6-8. But collecting is over here anyhow. The water in the depression in the ground begins to rise, and in January canoes pass along there from the Rio January to the Rio Madeira.

"December 2.—The collection of Sphingidae has continued to increase. I have found a second specimen of the brilliant fellow.* Yesterday and to-day were sunny. It is a serious matter that the Sphingidae drink so much water and dry

* *Oryba kadeni*, see No. 17 of the list.

very slowly. On cutting up some a jet of water spurted out. They give me so much to do that they take up all my time.

"December 8.—During the last three days I was occupied with drying the Hawkmoths, and I am still afraid to pack them up. I shall probably be obliged to keep back some which will not get dry."

The specimens arrived in good order. There was no mould among them.

As it is of some interest to know which species frequented the water-pools, we have compared all the specimens and now give a list of the forms the collection contained. The water-drinking habit is, among insects, essentially a feature of the male sex. All the specimens sent by Hoffmanns indeed were males, with the exception of five. However, since the collections made at the pools and other places near Allianca were not strictly kept separate from one another, these females may have been obtained at light or flowers. The presence in the collection of some *Ambuliciniæ* and *Chaerocampiniæ* may possibly also be explained in the same way.

The Sphingidae which are most abundant in South America are species of the genera *Cocytius*, *Protoparce*, *Pholus*, *Nyctophanes*, and many genera of the subfamily *Sesiinae*. The majority of the species collected by Hoffmanns are *Sesiinae*, the other subfamilies being but sparsely represented. Nearly half the number of specimens belong to two species, *Pachylia ficus* and *Pachylia resimens*. Next in abundance comes *Perigonia lusca* f. *ilus*. Large numbers were also taken of *Pachylia syces*, *Leucorhampha ornatus*, *Hemicroplanes nomius*, *parce*, and *inuus*, *Aleuron iphis* and *neglectum*, *Nycteryx stuarti*, etc., some of which, as a rule, are only obtained singly by collectors. It is not surprising that there are also some novelties in a collection of this size.

1. *Cocytius cluentius* Cram. (1775).

C. c., R. & J., *Revision* p. 54, n. 31 (1903).

6 ♂♂.

2. *Cocytius mortuorum* sp. nov.

♂♀. Closely resembling *C. duponchel* Poey (1832) in colour and markings; but the black markings on upperside of body and forewing thinner.—Forewing with a conspicuous white line at basal fourth, more or less interrupted and in cell strongly curved outwards; no black longitudinal streaks on disc; the oblique line which extends from apex of wing towards the postdiscal line very thin and much interrupted; the semitransparent space present below cell in *C. duponchel*, and covered in that species with regular rows of slightly elevated black scales, is replaced in *C. mortuorum* by an ill-defined clayish patch of ordinary scaling.—On hindwing the yellow patch of a paler tone, and only slightly sinuate; the transparent area a little larger than in *C. duponchel*.

On underside the yellow colour also of a paler tint, and both wings shaded with yellow along costal margin to apex of cell or beyond.

Legs more extended white than in *C. duponchel*, especially the hind tibia; first foretarsal segment as long as second and third together, comb on inside of this segment absent, except for one or two apical spines.

Genitalia quite different.—♂: Clasper quite small as compared with the enormous clasper of *C. duponchel*, and much irrorated with creamy white on the outside. Tenth tergite resembling that of *C. antaeus*, long, slender, not incised

at apex, hardly at all curved in lateral view; tenth sternite boat-shaped, pointed, the tip slightly pointing upwards. Harpe almost straight, tapering, not curved upwards, pyramid-shaped, with the upper surface concave, the edge armed with many small teeth, which are especially numerous at the apex, one of them standing at the inner edge near the apex being more prominent. Penis-sheath produced into an obtuse lobe; the apical edge notched on the opposite side.

♀. Vaginal plate nearest to that of *C. antaeus*; not closely examined.

Length of forewing: ♂ 57—60 mm.; ♀ 72 mm.

6 ♂♂ from Allianca; 1 ♀ obtained by Ockenden at S. Domingo, Carabaya, South-East Peru, 6000 ft., June 1901.

3. *Cocytius duponchel* Poey (1832).

C. d., R. & J., *Revision* p. 56. n. 33 (1903).

26 ♂♂. In one of these specimens the two white discocellular spots are enlarged on each forewing and form a curved, constricted bar.

4. *Protoparce perplexa* sp. nov.

♂. In colour and markings almost exactly like *P. pellenia* H.-S. (1854). Head and palpi a little more extended black; underside of abdomen less shaded with fuscous, the base being white.—Forewing broader and along the costal margin darker than in *P. pellenia*, the black sericeous patch situated below R³ longer, the sericeous area consequently more incurved between R³ and costal margin.—The light discal band of the hindwing much shaded with black; the black submarginal band narrower than in *P. pellenia*.

On *underside* the discal lines of forewing fainter even than in *P. pellenia*. Hindwing darker, only the abdominal area being greyish white; the black-brown discal dentate line single, there being just a vestige of the proximal line found on the disc in *P. pellenia*.

Harpe very much broader than in *P. pellenia*, widest at apex, which is rounded and curved inward. The other parts of the genitalia as in *P. pellenia*.

1 ♂. The conspicuous difference in the harpe induces us to treat the specimen as representing a distinct species.

5. *Protoparce rustica rustica* Fabr. (1775).

P. r. r., R. & J., *Revision* p. 84. n. 53. a (1903).

One pair.

6. *Protambulyx eurycles* H.-S. (1854).

P. e., R. & J., *Revision* p. 175. n. 135 (1903).

1 ♂.

7. *Protambulyx strigilis* L. (1771).

P. s., R. & J., *Revision* p. 179. n. 141 (1903).

5 ♂♂.

8. *Amphlypterus palmeri* Boisd. (1875).

A. p., R. & J., *Revision* p. 183. n. 145 (1903).

1 ♂.

9. *Pseudosphinx tetrio* L. (1771).

P. t., R. & J., *Revision* p. 353. n. 283 (1903).

A few ♂♂.

10. *Isognathus leachi* Swains. (1823).

I. l., R. & J., *Revision* p. 353. n. 284 (1903).

23 ♂♂.

11. *Erinnyis alope* Drury (1773).

E. a., R. & J., *Revision* p. 362. n. 292 (1903).

11 ♂♂.

12. *Erinnyis oenotrus* Stoll (1780).

E. o., R. & J., *Revision* p. 366. n. 296 (1903).

13 ♂♂.

13. *Pachylia ficus* L. (1758).

P. f., R. & J., *Revision* p. 373. n. 302 (1903).

More than 500 specimens, all ♂♂.

14. *Pachylia syces syces* Hübner. (1822).

P. s. s., R. & J., *Revision* p. 374. n. 303. a (1903).

68 ♂♂. The pale costal median patch of the forewing does not extend backwards beyond the lower angle of the cell in any of the specimens.

15. *Pachylia darceta* Druce (1881).

P. d., R. & J., *Revision* p. 376. n. 304 (1903).

5 ♂♂.

16. *Pachylia resumens* Walk. (1856).

P. r., R. & J., *Revision* p. 376. n. 305 (1903).

More than 500 specimens.

17. *Oryba kadeni* Schaef. (1870).

O. k., R. & J., *Revision* p. 379. n. 306 (1903).

3 ♂♂.

18. *Oryba achemenides* Cram. (1779).

O. a., R. & J., *Revision* p. 379. n. 307 (1903).

1 ♂.

19. *Leucorhampha triptolemus* Cram. (1779).

L. t., R. & J., *Revision* p. 381. n. 308 (1903).

17 ♂♂. One specimen has nearly as much yellowish green on the forewing as the next species.

20. *Leucorhampha ornatus* Rothschild (1895).

L. o., R. & J., *Revision* p. 382. n. 310 (1903).

83 ♂♂.

21. *Hemeroplanes nomius* Walk. (1856).

H. n., R. & J., *Revision* p. 388, n. 316 (1903).

69 ♂♂.

22. *Hemeroplanes pan* Cram. (1779).

H. p., R. & J., *Revision* p. 388, n. 317 (1903).

Now we have seen more material of this rare species, we find that there are two subspecies, which differ as follows :—

(a) *H. pan denticulata* Schaus (1895).

Calliomma denticulata Schaus, *Ent. News* vi. p. 141 (1895) (Jalapa).

Forewing more or less strongly dentate, in the ♂ the apex sinuate. On the hindwing the black anal spot at least $1\frac{1}{2}$ mm. wide. Basal half of forewing beneath tawny.

In the ♀, of which we have now one specimen from Costa Rica (Banana River), the forewing is less dentate than in ♂ and broader, with the tip truncate.

This form is found from Mexico to Peru.

(b) *H. pan pan* Cram. (1779).

Sphinx pan Cramer, *Pap. Erot.* iii. p. 39. t. 216. fig. D (1779) (Surinam).

Apex of forewing truncate, sinus below apex nearly as deep as in *denticulata*, teeth of margin very small. Hindwing darker along distal margin, being here dusted with black; black anal spot narrower than in the preceding form. On underside the basal area of the forewing with little or no tawny colour.

Hoffmanns obtained 2 ♂♂. We have other specimens, also ♂♂, from the Upper and Lower Amazons (Rio Cachyaco, Pebas, and Pará), and British Guiana (Omai).

23. *Hemeroplanes acuta* sp. nov.

♂. Body similar to that of *H. parce*, but much deeper in tone, being olivaceous fawn.

Wings, *above*.—Forewing narrower than in *H. parce*, apex sharply pointed, outer margin deeply sinuate below apex; ground-colour blackish sepia, the wings appearing much more uniform in colour than in *H. parce*; two triangular costal patches plumbeous, one in middle and the other at the subcostal fork, this second patch without the small dark lunules present in *H. parce*; at the proximal side of the silver spot a dark curved band as in *parce* but fainter, and farther basal an indistinct pale band edged proximally by a thin pale line; near base a vestige of another pale band; at hindmargin a plumbeous patch below the silver spot; outer half of wing with black transverse speckles; no sharply marked oblique apical line as in *H. parce*, but a plumbeous submarginal cloud before centre of outer margin, outwardly bordered with black.—Hindwing ferruginous, with a blackish sepia distal border, which is 6 mm. wide at apex and encloses an ill-defined pale bar at anal angle; on disc the vestige of a dark band.

Underside dark fawn, with numerous blackish transverse speckles, both wings bearing a blackish band outside cell; forewing ferruginous from base to apex of cell, no apical line; lines of dots in outer half of hindwing, like the median line, more prominent than in *H. parce*.

Length of forewing: 32 mm.

One ♂ from Allianca. The style of marking of the forewing recalls dark specimens of *H. calliomenae*. In this species, however, the hindwing is always of a yellow tint, never ferruginous.

We have two more ♂♂ of *acuta*, one from Chanchamayo, the other without locality (and without head).

24. *Hemeroplanes parce* Fabr. (1775).

H. p., R. & J., *Revision* p. 390. n. 320 (1903).

134 ♂♂, which exhibit considerable variability, especially in the distinctness of the markings on the forewing and the amount of black in the marginal area of the hindwing.

25. *Hemeroplanes innuus* R. & J. (1903).

H. i., R. & J., *Revision* p. 391. n. 321 (1903).

69 ♂♂.

26. *Aleuron carinata* Walk. (1856).

A. c., R. & J., *Revision* p. 395. n. 324 (1903).

8 ♂♂.

27. *Aleuron chloroptera* Perty (1834).

A. c., R. & J., *Revision* p. 396. n. 327 (1903).

38 ♂♂.

28. *Aleuron iphis* Walk. (1856).

A. i., R. & J., *Revision* p. 398. n. 329 (1903).

58 ♂♂.

29. *Aleuron neglectum* R. & J. (1903).

A. n., R. & J., *Revision* p. 398. n. 330 (1903).

72 ♂♂. A darker insect than the preceding one; the white line on the forewing sometimes barely vestigial.

30. *Enyo japix japix* Cram. (1776).

E. j. j., R. & J., *Revision* p. 400. n. 331. *a* (1903).

13 ♂♂.

31. *Epistor lugubris lugubris* L. (1771).

E. l. l., R. & J., *Revision* p. 404. n. 333. *a* (1903).

4 ♂♂.

32. *Epistor ocypete* L. (1758).

E. o., R. & J., *Revision* p. 405. n. 334 (1903).

71 ♂♂ and 1 ♀.

33. *Epistor gorgon* Cram. (1777).

E. g., R. & J., *Revision* p. 405. n. 335 (1903).

4 ♂♂.

34. *Epistor cavifer* R. & J. (1903).

E. c., R. & J., *Revision* p. 407. n. 337 (1903).

2 ♂♂.

35. **Pachygonia caliginosa** Feld. (1874).

P. c., R. & J., *Revision* p. 410. n. 339 (1903).

8 ♂♂.

36. **Nyceryx coffeae** Walk. (1856).

N. c., R. & J., *Revision* p. 417. n. 349 (1903).

38 ♂♂.

37. **Nyceryx magna** Feld. (1874).

N. m., R. & J., *Revision* p. 418. n. 350 (1903).

4 ♂♂. This species is very rare in collections.

38. **Nyceryx riscus** Schaus (1890).

N. r., R. & J., *Revision* p. 422. n. 357 (1903).

18 ♂♂, of more than average size.

39. **Nyceryx stuarti** Rothsch. (1894).

N. s., R. & J., *Revision* p. 422. n. 358 (1903).

45 ♂♂. This species and *riscus* resemble each other closely; they are distinguishable, apart from the genitalia, by the dark marginal band of the forewing being wider at hind angle in *stuarti* than in *riscus*. On the underside, the posterior half of the submarginal line on the forewing and the distal border of the hindwing are less prominent in *stuarti* than in *riscus*; also the S-shaped lines are fainter in *stuarti*, and the cell of the forewing is not or but very little shaded with fuscous.

40a. **Perigonia lusca** f. *ilus* Boisd. (1870).

P. l. f. i., R. & J., *Revision* p. 428. n. 363. *c*¹ (1903).

340 ♂♂. Variable in size. The yellow band of the hindwing broader in some specimens than in others.

40b. **Perigonia lusca** f. *interrupta* Walk. (1864).

P. l. f. i., R. & J., *Revision* p. 428. n. 363. *d*¹ (1903).

4 ♂♂.

[40c. **Perigonia lusca** f. *restituta* Walk. (1864).

P. l. f. r., R. & J., *Revision* p. 428. n. 363. *e*¹ (1903).

4 ♂♂.

41. **Eupyrrhoglossum sagra** Poey (1832).

E. s., R. & J., *Revision* p. 430. n. 367 (1903).

43 ♂♂.

42. **Eupyrrhoglossum venustum** sp. nov.

♂. Head and thorax above black-brown (dark mummy-brown), with two broad plumbeous stripes; head with slight mesial crest. End-segment of antenna cylindrical. Abdomen black-brown at base, tergites 4 and 5 dark chestnut, shaded with plumbeous; tergites 6 and 7 black with chestnut fringes, a large central spot and a smaller lateral spot on each, plumbeous; tripartite tail large, black-brown with yellow spot at apex of lateral lobes and two subbasal dorsal plumbeous spots,

tip of mesial lobe chestnut. On underside the palpus creamy white, breast and first three abdominal sternites maize-yellow, paler than in *E. coreus*, this colour extending on to the lower edge of the tergites, rest of abdomen pale chestnut, the sternites of segments 5 and 6 bearing a yellowish spot towards each side.

Wings, *above*.—Forewing narrower and longer than in *E. sagra*, black-brown, plumbeous between the lines; seven black-brown transverse lines between base and vein M^1 ; lines 2 and 3 and again 6 and 7 more or less fused, this last double line nearly straight; a stigma similar to an inverted comma, with a dot in front of it; on disc 5 parallel, somewhat dentate, S-shaped lines, partly effaced between R^3 and SM^2 , where the wing is paler brown and is flushed with plumbeous; the fifth line broad, being narrowed before R^3 ; a submarginal line, which runs from the apical angle of the wing to the hinder angle, joins the fifth discal one before R^3 , and is coincident with it from there to hind angle; outer margin a little more convex in centre than in *sagra*.—Hindwing brownish black; a greenish yellow central band broader than in *sagra*, much paler than in *coreus*; a slight admarginal line and a similar submarginal one plumbeous, a third line indicated behind; fringe creamy buff, yellow at anal angle.

Underside pale hazel. Basal half of forewing blackish, shaded with yellowish; on disc two brown dentate lines in S-shape and a third faint one between them; a faint undulate line from apex, joining outer discal line at R^2 .—Hindwing from base to anal angle maize-yellow, this colour gradually fading away towards disc; three brown lines in outer half, the first in middle, nearly straight, the second and third curved costad and slightly dentate.

Length of forewing: 31 mm.

1 ♂ from Allianca. At once distinguished from *E. coreus* by the pale tint of the band of the hindwing and the breast, and the numerous brown-black lines on the upperside of the forewing.

43. *Sesia ceculus* Cram. (1777).

S. c., R. & J., *Revision* p. 423, n. 369 (1903).

Five large and two small ♂♂.

44. *Sesia fadus* Cram. (1775).

S. f., R. & J., *Revision* p. 437, n. 373 (1903).

Three worn ♂♂.

45. *Pholus anchemolus* Cram. (1779).

P. a., R. & J., *Revision* p. 478, n. 401 (1903).

One pair.

46. *Pholus satellitia* licaon Cram. (1775).

P. s. l., R. & J., *Revision* p. 482, n. 406, c (1903).

4 ♂♂.

47. *Xylophanes schausi* serenus subsp. nov.

Xylophanes schausi, R. & J., *Revision* p. 686, n. 632 (1903) (partim; Venezuela).

The olivaceous submarginal patch between the radials on the upperside of the forewing very slightly indicated, while it is prominent in the southern form, *X. s. schausi* from Brazil (Rio, Espiritu Santo).

1 ♂ from Allianca (type) and 2 ♀ ♀ from Aroa, Venezuela.

The specimen figured in the *Revision* (pl. ix. fig. 13) is a ♂, not a ♀ as stated *l.c.*; we had at that time 4 ♂ ♂ from Brazil and 2 ♀ ♀ from Venezuela. The sexes are practically alike in colour and markings.

48. **Xylophanes cosmius obscurus** subsp. nov.

♀. Resembles *X. cosmius* R. & J., *Noe. Zool.* p. 183. n. 12 (1906), from South-East Peru.

Upperside.—The antemedian double line of the forewing straight across cell, elbowed at M, not at SC as in *X. cosmius* and *epaphus*; the black median patch larger than in the two species mentioned; the discal line distinctly though feebly curved basad below centre of wing, reaching hindmargin in middle; area between this line and distal margin as in *cosmius* and *epaphus*, but the blackish portion of a deeper tone; fringe without distinct pale spot, except for a minute one at apex.—Hindwing as in *cosmius*, but the band less green and the margin entirely black; fringe white, with minute black dots at the veins.

Underside more densely irrorated than in the allied forms, and the marginal band broader and purplish black. On the forewing the two black costal spots less prominent, and the basal half of the wing more extended black.

1 ♀. This specimen was among Hoffmann's butterflies, and we may therefore assume that it was not caught at the pools drinking. As we do not know the ♀ of *cosmius* and have seen only two ♀ ♀ of *epaphus*, we are not yet certain if *obscurus* is a distinct species or a geographical form of *cosmius*. In order to emphasize its close affinity with *cosmius*, we treat it as a subspecies.

49. **Xylophanes chiron nechus** Cram. (1777).

X. ch. n., R. & J., *Revision* p. 698. n. 651. *a* (1903).

5 ♂ ♂, 1 ♀.

SOME NEW *SPHINGIDAE*.

BY THE HON. L. W. ROTHSCCHILD AND K. JORDAN.

1. *Cocytius vitrinus* sp. nov.

♀. Nearest to *C. duponchel* Poey (1832). Upperside of body more grey, the lateral border of thorax white; underside of abdomen pure white, with the brown mesial spots small; side-spots of abdomen paler yellow than in *C. duponchel*, as is also the base of the hindwing above and beneath.—Forewing narrower, the hind angle much less prominent, outer margin convex, the greenish colour of *duponchel* almost entirely replaced by white and grey; the two black lines across apex of cell more longitudinal, having nearly the direction of vein R^3 ; white stigma large, kidney-shaped, edged with brown; all the discal lines more strongly curved in their costal half, the interspace between the third and fourth lines ochraceous at the veins, the fourth line almost continuous, prominent; black streak R^3 — M^1 long, extending to black submarginal cloud; behind M^1 another distinct black longitudinal streak; at apex a white patch bordered by the black oblique apical line, marginal area altogether more extended white than the disc.—Hindwing also narrower than in *duponchel*, the transparent area much larger, reaching close to base and posteriorly extending nearly to submedian fold; the pale yellow basal patch consequently much reduced anteriorly, the portion situated in *duponchel* in front of the sinus being almost entirely absent in *vitrinus*, and the sinus therefore less distinct; black marginal border only 4 mm. broad in centre at the veins, slightly dentate between the veins.

On *underside* the yellow colour reduced. Forewing with faint pale shades along the veins, and a very slight indication of a dark band on the disc. The transparent area of hindwing consists of six spaces.

Edge of vaginal orifice raised anteriorly and laterally, anteriorly sinuate, laterally slightly angulate, but not produced into a triangular lobe as in *C. duponchel*.

Length of forewing: 58 mm.

One ♀ from Santiago, Cuba (Tollin).

2. *Polyptychus contraria diffusus* subsp. nov.

♂ ♀. Intermediate in shape of wings between *P. c. contraria* from East Africa and *P. c. submarginalis* from the western side of the continent.

♂. Wings without any lines above and beneath. On *upperside* forewing with fuscous fringe and a drab shadow along outer margin, this border being narrowed to a point at apex of wing, gradually widening and fairly well defined from there to vein R^2 , where the shadowy band is broadest.—Hindwing very pale buff-pink; extreme edge of outer margin, not the fringes, blackish before anal angle; near this angle a minute blackish dot and a vestige of a second.

On *underside* the fringe of both wings dark spotted.

♀. Forewing, on *upperside* with traces of two antemedian lines and a discal

line; a subapical costal black dot is followed by traces of some submarginal dots on the veins.—Hindwing with a faint median line; no submarginal dots.

On *underside* with very faint submarginal dots on the veins of both wings.

One pair from Shinda, Eritrea (received from Messrs. Standinger & Bang-Haas).

3. *Perigonia leucopus* sp. nov.

♂. Near *P. stulta* H.-S. (1854). Upperside of body grey-vinaceous, sides of abdomen with a row of ill-defined grey spots. Underside as in *P. stulta*, pale walnut-brown; tibiae and tarsi with a conspicuous pure white stripe on upperside.

Wings nearly the same in shape and markings as in *P. stulta*. *Upperside*: forewing shaded with vinaceous grey; the brown lines a little more accentuated in consequence of the grey colour of the interspaces; antemedian line less regular than in *stulta*, the space between it and the stigma either much darkened (*type*), or of nearly the same tint as the basal area; at margin a conspicuous, regular, halfmoon-shaped grey patch, expanding between apex and central angle of outer margin; tip of wing more pointed than in *stulta*.—Hindwing: as in *stulta*, but brown outer border anteriorly narrower.

Underside as in *stulta*; lines weak.—Forewing with a feebly marked, narrow, grey-brown outer border, and without oblique apical line, the border $1\frac{1}{2}$ to 2 mm. wide below apex, its inner edge following the curve of the margin of the wing, but the border fading away posteriorly. Abdominal fold of hindwing paler than rest of wing, but not yellowish as in *stulta*.

Harpe triangular, tip obtuse, but not truncate. Penis-sheath with two teeth on the whip and two other near apical margin on side opposite the whip; the whip shorter than in *P. stulta*, being about half as long again as the diameter of the penis-sheath.

2 ♂♂ from Cuyaba, Matto Grosso (received from Messrs. Standinger & Bang-Haas).

4. *Nephele xyliana* sp. nov.

♀. Body above isabella-colour; underside paler, the ventral side of the palpi being almost white.

Upperside of forewing isabella-colour, with a small round white stigma; at nearly equal distances between base and stigma three blackish lines, curving costad, the first line very indistinct; at outer side of stigma and close to it two more lines, which are nearer together behind than in front and are excurved anteriorly and incurved below middle; outside subcostal fork a more prominent dentate line, curving costad in front and approaching at hind margin the line preceding it; a submarginal line irregular, vestigial at apex and between veins R^1 and R^3 , nearly touching the discal line before M^1 , ending at hind margin close to angle, where the line is heaviest.—Hindwing of nearly the same tint as forewing, becoming blackish brown at outer margin, without markings; fringe creamy buff, with small, ill-defined fuscous dots.

Underside like upper, a little paler, with a faint pink tone.—Forewing slightly shaded with fuscous from base to first discal line, excepting the costal margin; a creamy stigma indicated; on disc two lines, the first near lower angle of cell, slightly curved, the second a little beyond centre of disc, consisting of small halfmoons and being excurved in front, incurved before M^2 ; a very faint line from apex to R^1 , the marginal area outside this line being slightly paler than the disc.—Hindwing also

with two lines corresponding to those on forewing, the second ending between the tips of veins SM^2 and SM^3 .

Length of forewing: 33 mm.; breadth: 14 mm.

One ♀ from "Abyssinia" (received from Messrs. Standinger & Bang-Haas).

5. *Xylophanes acrus* sp. nov.

♂ ♀. Allied to *X. amadis* Stoll (1782). Upperside of head and thorax dark bistre, a lateral stripe from tip of palpus to tip of tegula creamy buff with a pinkish tone, the stripe partly edged with a paler line, another stripe of the same colour in the centre from occiput to metanotum, not sharply separated from abdomen, the upperside of the latter being only a little darker than this stripe and bearing two widely separated rows of black dots; on sides of first and second abdominal segments a large olivaceous black patch. Underside buff-pink, palpi bistre-colour.

Wings, *upperside*: forewing with the apex strongly produced and pointed; the outer margin incurved below apex and then almost straight to hind angle in ♂ and convex in ♀; as in *amadis*, a heavy greenish black central line runs from apex to hind margin, reaching the latter proximally to basal third; on the proximal side the line bordered with olivaceous creamy buff; the whole costal area washed with olive-green, the base of the costal margin remaining somewhat cream-buff; two dark curved lines proximally to M^2 from costal margin across cell, not reaching hind margin; a small black stigma and beyond it an ill-defined blackish cloud; parallel with the central line and situated at the proximal side of it three thin lines, which are more or less accentuated upon the veins and curved costad at SC^5 ; along outer side of central line the wing so strongly shaded with dark greenish olive that the line is not sharply defined on this side, except at tip of wing; a row of blackish submarginal dots connected with each other by traces of a crenate line, the teeth of which are represented by these vein-dots; beyond the dots the wing becomes slightly paler; fringe uniformly dark greenish olive.—Hindwing black, a cream-buff, slightly pinkish band on disc, the black colour extending along veins M^2 and SM^2 across the band and at R^2 and M^1 as a tooth into the band; margin pale greenish olive, separated from the discal band by a black band which extends along the veins to edge of wing; fringe uniformly creamy buff with a pink tint, a dark dot only at tip of veins M^2 and SM^2 .

Underside dirty creamy buff and ferruginous in ♂, more evenly ferruginous in ♀; forewing from base to first discal line black, the cell, however, remaining pale clayish; both wings with two lines on disc, the first somewhat S-shaped, reaching costal margin of forewing shortly outside subcostal fork, the second line accentuated by vein-dots.

Outer spur of midtibia a little shorter than inner spur.

Length of forewing: ♂ 49 mm.; ♀ 55 mm.

One pair from Chiriqui, Panama (received from Messrs. Standinger & Bang-Haas).

6. *Xylophanes amadis amadis* Stoll (1782).

X. a. a., R. & J., *Revision of Sphingidae* p. 695. n. 647. a (1903) (partim; Surinam).

We have now received a specimen (a ♀) from French Guiana (collected by E. Le Moilt) which agrees better with Stoll's figure than do the Venezuelan specimens which are considered to be *amadis amadis* in our *Revision*. This is the

only example we have seen from the Guianas. The centre of the thorax and base of abdomen above are darker than in Venezuelan individuals; the inner border of the central line of the forewing is paler, being almost pure white near the base; the band of the hindwing is much shaded with fuscous.

The outer spur of the midtibia is shorter than the inner one.

7. *Xylophanes amadis meridanus* subsp. nov.

Xylophanes amadis amadis, Rothschild & Jordan (nec Stoll, 1782), *Revision of Sphingidae*, l.c. t. 9, fig. 15 (1903) (partim; Mérida).

♂ ♀. The form figured l.c. may be named as above. The outer spur of the midtibia is longer than, or as long as, the inner one.

A series from Mérida, Venezuela.

A NEW SPECIES OF THE DIPTEROUS GENUS *ACHILIS* FABR. (FAMILY ORTALIDAE).

By ERNEST E. AUSTEN, F.Z.S.

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Achias rothschildi sp. nov. (Plate XV., figs. 5-9).

♂ ♀. ♂.—Length (five specimens) 13·5 to 16 mm.; length of eye-stalk, measured from base of stalk to inner margin of eye (five specimens) 8·5 to 25·6 mm.; width of head across occiput immediately below base of eye-stalks 4 to 5 mm.; length of wing 14 to 16·6 mm.

♀.—Length (two specimens) 14·5 mm.; width of head across vertex, including eyes, 7 to 7·6 mm.; length of wing 16 to 16·5 mm.

Resembling *Achias longiridens* Walk. and *A. latiridens* Walk. in coloration and markings of body and wings; distinguished from both by the femora being without sharply marked dark tips (though the distal extremities of the front and middle femora in the ♂ and of the front femora in the ♀ usually exhibit a dark longitudinal streak above), by the presence of a well-marked pale band (interrupted on the upper side) on the tibiae, and by the great development of the callosity on the inner side of the tips of the hind tibiae.

Head.—Front orange-ochraceous,* more or less irregularly and finely mottled with clove-brown; face and jowls ochre-yellow or buff-yellow, antennal cavities dark brown or brownish, a clove-brown streak on each side, running from base of eye-stalk in ♂ and from lower margin of eye in ♀ nearly to lower margin of jawl, and a similar but usually somewhat broader mark extending from bottom of inner margin of each antennal cavity to edge of buccal cavity; occiput buff-yellow above,

* For names and illustrations of colours, see Ridgway, *A Nomenclature of Colors for Naturalists* (Boston: Little, Brown & Co., 1886).

maize-yellow below, with a more or less distinct, clove-brown, transverse mark between bases of eye-stalks in ♂ or eye-processes in ♀; **palpi** ochraceous-buff, clothed with dark brown or blackish hairs; **antennae**, including arista and its hairs, dark brown, extreme base of arista, first joint and bases of second and third joints of antennae paler (buff or ochraceous-buff).

Thorax.—Dorsum dull metallic greenish bronze (sometimes with traces of a purplish tinge anteriorly), obscured by a coat of dull yellowish olivaceous pollen, and marked by a series of black longitudinal stripes as shown on Plate XV., figs. 5-9; pleurae and pectus buff or ochraceous-buff, covered with greyish pollen, pleurae obscurely mottled with dark brown; dorsum clothed with very short and fine appressed black hair, much closer on black stripes than elsewhere, postero-lateral and posterior borders clothed with short ochre-yellow hair; viewed under a platyscopic lens the dorsum has a somewhat coarsely punctured appearance; **scutellum** shining metallic dark bronze-green, with a velvety patch of exceedingly minute, pale yellow hairs on each side of base above.

Abdomen.—Dorsum shining metallic bronze-green (occasionally bronze-brown), basal angles of first segment more or less ochraceous-buff; surface of dorsum clothed with closely set, appressed, shining, ochre-yellow hair; basal angles with longer ochre-yellow hair, fourth segment and hind border of third segment in ♀ clothed with dark brown hair; apex of fourth segment in ♂ for most part also usually clothed with dark brown hair.

Wings hyaline, with a faint yellowish tinge, and with darker markings as shown in figures 5-9 (Plate XV.); small transverse vein and base of third longitudinal vein suffused with clove-brown, second longitudinal vein immediately above small transverse vein and distal extremity of first longitudinal vein also suffused with clove-brown; second costal cell and marginal and submarginal cells on either side of blotch above small transverse vein tinged with ochre-yellow; apex of wing from level of posterior transverse vein suffused with sepia-brown, which extends along hind border, becoming fainter in third posterior cell, and in apex of wing itself is usually darker on distal extremities of second, third, and fourth longitudinal veins, and on posterior transverse vein. (In one specimen the brown colour on the distal portion of the second longitudinal vein is so much intensified that this vein has a continuous dark brown border from the blotch above the small transverse vein to the costa, the border being broader from the level of the posterior transverse vein onwards).

Halteres.—Knobs dark brown, stalks cream-buff, or buff.

Legs orange-buff; femora marked as stated in diagnosis, front femora also with an ochraceous patch on inner side at tip, below which they bear a double row of stout black spines; tarsi and tibiae clove-brown, tibiae marked in middle with a conspicuous, interrupted, ochraceous band, as stated in diagnosis; callosity on inner side of tips of hind tibiae clove-brown; tarsi clothed on under side with short, closely set, shining orange ochraceous hair.

New Guinea: Type of ♂, three additional ♂♂, and one ♀ from Stephansort, German New Guinea; a second ♀ and a fifth ♂ from Milne Bay, British New Guinea, February, 1899 (A. S. Meek).

Types, with three ♂ paratypes, in the Tring Museum.

The Hon. Walter Rothschild, in whose honour I have much pleasure in naming this striking species, has kindly presented paratypes of both sexes to the British Museum (Natural History).

PLATE XV.

1. *Rhaphiorhynchus rothschildi* Austen, ♂ (type).*
2. *Pepsis elevata* Fabr.*
3. " *heros* Fabr.*
4. *Mydas praegrandis* Austen, ♀ (type).*
5. *Achias rothschildi* sp. nov., ♀.
6. " " " " ♂.
7. " " " " "
8. " " " " "
9. " " " " " (type).

All figures are natural size.

NOTE.—The type (♂) and the other three males and female of *Achias rothschildi* from Stephansort were collected by the late Herr Wahnes.

The *Rhaphiorhynchus* and *Mydas* were collected by José Steinbach in Bolivia. The two *Pepsis* are figured because they are the "models" mimicked by the *Rhaphiorhynchus* and the *Mydas* respectively. A full knowledge of the life-history of these two remarkable *Diptera* can alone determine whether this is a case of "protective" or of "aggressive" mimicry.

The four males of the *Achias* are figured to illustrate the very great difference in the development of the eye-stalks.

WALTER ROTHSCHILD.

* See Ernest E. Austen, "Two Remarkable New Species of *Diptera*," *Nor. Zool.* May 1909, vol. xvi. pp. 129 131.

NEW FORMS OF THE ACRAEINE GENERA *PLANEMA* AND *ACTINOTE*.

By K. JORDAN.

1. *Planema adrasta pancalis* subsp. nov.

♂. Orange bands broader on both wings than in *P. a. adrasta* Weym. (1892), that of forewing not interrupted posteriorly as is the case in ♂ of *P. a. adrasta*.

One ♂ from Katanga, Tanganyika.

2. *Planema entalis* sp. nov.

♂. Smaller than *P. poggei* Dew. (1879) and *P. pseudouryta* G. & S. (1890). Outer margin of forewing more incurved, band nearly as in *pseudouryta*, more extended distad at R^3 , exteriorly with three sharp incisions between R^3 and SM^2 as in *pseudouryta*, the band as broad at hindmargin as at costal margin; on the inner side similarly curved as in *poggei*.

Band of hindwing, on *upperside*, dull white, being slightly shaded with fuscous, not with yellow, quite gradually fading away exteriorly, like the orange band of *pseudouryta*, the outer margin of wing black. Base of hindwing beneath as in *poggei*; median band white.

One ♂ from North Bailunda, Angola, August 6, 1901 (Max Pemberton).

3. *Planema consanguinea sartina* subsp. nov.

♀. Band of forewing *above* of the same colour as in ♂ of *P. c. consanguinea*, posteriorly more proximal in position than in both sexes of that race; blackish border of hindwing broader, and the disc paler.

On *underside* the basal area of hindwing chestnut, of a much deeper tone than in *P. c. consanguinea*, the disc on the contrary paler.

Two ♀♀ from Bansu, Axim, May 1900 (Mr. Perry).

4. *Planema epaea kivuana* subsp. nov.

♂. *Upperside*: markings of forewing in size about the same as in *P. c. epaea*, but the oblique band pale creamy buff, and the patch before hindmargin pale buff and externally not sharply defined.—Hindwing: a buffish white antemedian band, narrow, gradually fading away on distal side.

On *underside* these markings buffish white; basal area of hindwing lighter yellow than in *P. c. epaea*.

♀. Markings pure white above and below; oblique band of forewing narrower than in *P. c. epaea*, the band of hindwing also narrower and on distal side more sharply defined; base of hindwing beneath paler yellow.

One pair from Kwidgi Island in Lake Kivu, 1500—2000 m., November 1907 (R. Grauer).

5. *Planema tellus eumelis* subsp. nov.

♂♀. Sexes similar. Forewing broader than in *P. t. tellus*; the oblique band wider, extending nearer to the margin; patch before hindmargin smaller. Black

margin of hindwing much narrower than in *P. t. tellus*. On both wings the light orange areas paler than in *P. t. tellus*, the underside of the hindwing less suffused with fuscous distally.

A series from various places in Toro (type) and Uganda.

6. *Planema quadricolor leptis* subsp. nov.

♂ ♀. On *upperside* band of forewing 2 mm. broad at its widest point, *i.e.* between R^2 and R^3 , vestigial between M^2 and SM^2 , almost interrupted at the veins. Band of hindwing white.

On *underside* the band of forewing a little broader than above.

A pair from the Kikuyu Escarpment, above Nairobi, March 1901 (W. Doherty); and "Nairobi."

7. *Planema quadricolor itumbana* subsp. nov.

♂. On *upperside* band of forewing broader than even in *P. q. latifasciata* Sharpe (1892), measuring 9 mm. along R^3 , being broader at this vein than the black apical area is in front of vein R^2 . Band of hindwing white.

Two ♂♂ from Itumba, German East Africa (Dr. Baxter).

8. *Actinote erinome carabaia* subsp. nov.

♂. Connects *A. e. erinome* Feld. (1861) from the northern districts of Eastern Peru and, according to Felder, from Ecuador, with the Bolivian *A. e. testacea* G. & S. (1868), some specimens approaching *testacea*, others differing but very little from *erinome*. Forewing always with distinct deep orange costal streak, the cell also partly orange-red (type) or at least beneath with a trace of orange.

A series of ♂♂ from different places in Carabaya, South-Eastern Peru (G. R. Ockenden); type from between Rio Inambari and Limbani, March 1904.

9. *Actinote e. erinome* ab. *sciana* ab. nov.

♂. A small specimen with the *upperside* entirely black, the orange band of normal *erinome* being represented on the right wing only by four dirty orange scales and entirely absent from the left wing. On the *underside* the band is dull orange and much reduced, especially its anterior half.

One ♂ from Pozuzu, Huanuco, Peru, 800—1800 m. (W. Hoffmanns), among a series of normal *erinome*.

10. *Actinote radiata intensa* subsp. nov.

♂. Much deeper black than *A. r. radiata* Hew. (1868), the macular band narrower, the anterior spots especially being reduced in length. The band and streaks more pinkish on underside.

A series of ♂♂ from Cushi, Huanuco, Peru, 1800—1900 m. (W. Hoffmanns).

11. *Actinote corduba messerics* subsp. nov.

♂. Basal area and subapical band of forewing a little deeper red than in the *A. c. corduba* Hew. (1874) from Bolivia, the former more extended, while the band is reduced, the spot M^1 — M^2 of the band represented by two streaks (type), or one streak, or quite absent.

A series from Carabaya, South-East Peru (G. R. Ockenden); type from between La Oroya and Agnalani, October 1904.

12. *Actinote alcyone salmonea* subsp. nov.

♂. *Upperside* with a slight blue sheen, which is more distinct on the fore- than on the hindwing; markings paler red than in the more southern races, being dull salmon-colour.

A series of ♂♂ from the Huayabamba River, S.E. of Chachapoyas, North Peru, about 1100 m. (O. T. Baron).

13. *Actinote alcyone melina* subsp. nov.

♂. Markings of forewing above buff-yellow, a little paler than in *A. a. theophila* Dogn. (1888); basal area not quite so large as in *A. a. alcyone* Hew. (1852), the spot before base of M¹ absent (type) or present; subapical band narrow, curved, consisting of four spots, of which the last is divided into two small ones.

On *underside* the hindwing and apex of forewing as in *A. a. theophila*, the black band of forewing a little longer.

Two ♂♂ from the Rio Negro, ex coll. Felder.

14. *Actinote alcyone varians* subsp. nov.

♂. *Upperside* black, with a uniform blue gloss all over, but the gloss much less shiny than in *A. nелеus* Latr. (1811); forewing with a diffuse, narrow, obliquely transverse salmon-coloured patch before middle, or with such a patch of larger size, or without any trace of it; no subapical band.

Underside: forewing with the salmon-coloured patch larger than above, sometimes reaching from near base to near apex of cell, usually present before hindmargin in specimens which have no trace of it on upperside; a narrow subapical band in nearly all specimens, also salmon-colour.

Abdomen red.

A series of ♂♂ from West Colombia: Rio Dagua (W. F. H. Rosenberg), El Credo and Jimenez (Palmer), Cali (W. F. H. Rosenberg); type from Cali.

15. *Actinote euryleuca* subsp. nov.

♂. Allied to *A. hylonome* Doubl. (1844). Much larger than the ♂ of that species; the white band of the forewing broader, the cross-veins situated within the band.

Underside paler than in *hylonome*, the hindwing and apex of forewing uniformly buff with black streaks; hindwing not shaded with orange at base and not fuscous or black in centre.

Abdomen orange beneath.

R¹ of hindwing from cell, not stalked with R² as is the case in *hylonome*.

Length of forewing: 27 mm.

Two ♂♂ from Moyobamba, North Peru, spring 1887 (M. de Mathan).

16. *Actinote ozomene catopasta* subsp. nov.

♂. On *upperside* the orange-rufous area on the whole more extended than in Colombian specimens, *A. o. ozomene* Godart (1819).

On *underside* the hindwing buff streaked with black; outer area of both wings more or less distinctly streaked with buff.

♀. The orange-rufous colour more restricted than in *A. o. ozomene*. On

underside the creamy yellow patch a very little larger posteriorly, and the fuscous cloud in the centre of the hindwing more distinct.

A series of both sexes from Western Ecuador: Chimbo, 1000 ft. (W. F. H. Rosenberg), and Jarma.

17. *Actinote stratonice meridana* subsp. nov.

♂. Orange area of *upperside* reaching close to base, extending also below M^2 farther basad than the point of origin of this vein, but usually interrupted at this point by a black spot; the light area reaching base on *underside*, being reddish orange at base in and below cell; proximal half of hindwing streaked with reddish orange, distal half almost without streaks.

♀. Median patch of forewing above creamy buff, shaded with dark ferruginous proximally, the streak situated below M^2 interrupted by an oblique brownish black bar which is constricted in centre and does not extend forward across M^2 .

Four ♂♂ and two ♀♀ from Venezuela: Mérida.

18. *Actinote stratonice marthae* subsp. nov.

♂. Like the preceding, but there is a broad oblique black bar from cell or M^2 to hindmargin.—*Underside* of hindwing almost evenly streaked with reddish orange.

♀. The broad black oblique bar which invades the light-coloured area of the forewing extends from hindmargin across M^2 to cell.

Two ♂♂ and four ♀♀ from Onaca, Sta. Marta, 2200 ft., September—October 1901 (Charles Engelke).

19. *Actinote adoxa* sp. nov.

♂. Similar to *A. stratonice acipha* Hew. (1861). Outer margin of forewing more rounded; *upperside* with a feebler blue sheen; the light-coloured patch salmon-colour, extending close to base and being posteriorly bordered by the submedian vein SM^2 , its distal edge somewhat diffuse, costal edge quite black also in front of black discocellular spot, which is joined to the black edge; the spots of the salmon patch situated outside the black discocellular spot small, diffuse.

On *underside* the salmon patch larger than above, the black discocellular spot situated within the patch.—Hindwing streaked with salmon, the streaks in and before cell broader than the black streaks which separate them from each other.

One ♂ from Bogotá (Mr. Child).

20. *Actinote callianthe alla* subsp. nov.

♂. The salmon patch on *upperside* of forewing reduced to a band, of which the oblique inner border crosses cell at point of origin of M^2 , the black basal area having the same strong blue gloss as the hindwing. On *underside* the patch nearly reaches the base, but is proximally shaded with, and invaded by, black, and is also of a deeper red tint than in *A. c. callianthe* Feld. (1862).

One ♂ from Mérida (Briceño).

21. *Actinote callianthe rufa* subsp. nov.

♂. The blue sheen of the *upperside* less glossy than in *A. c. callianthe* Feld. (1862), no distinct blue sheen at outside of patch of forewing; this patch rufous red,

being much deeper in tone than in *callianthe* and of a different shape; the two spots M^1-SM^2 of the patch extend much nearer to the outer margin, where they are more or less acuminate, the posterior spot being also narrower proximally than in *A. c. callianthe*, the black discocellular spot less prominent on account of the rufous spots beyond it being very obscure.

On *underside* the hindwing less distinctly striped in outer half than in *callianthe*.

One ♂ from Zamora River, Ecuador, 1800 m., May 1899 (Simons).

22. *Actinote dice napensis* subsp. nov.

♂. Like *A. d. rosaria* Weym. (1879), but the discal band only 1 mm. broad on the upperside and consisting here of four spots, on underside $2\frac{1}{2}$ mm. broad and consisting of six spots.

Differs from *A. dice olyae* Rebel (1901) in the upperside having a feebler blue sheen and in the salmon patch and band being paler.

One ♂ from Baeza on the Rio Napo, East Ecuador, March 1891 (W. Goodfellow).

23. *Actinote anaxo comta* subsp. nov.

♂. Band of forewing orange-red, broader than in *A. a. anaxo* Hopff. (1874) from Chanchamayo, spot M^1-M^2 being $6\frac{1}{2}$ mm. long in its centre. On *underside* the entire hindwing and the apex of forewing pale buffish cream-colour with black streaks.

Two ♂♂ from Callango, Province Cuzco, 1500 m. (O. Garlepp).

24. *Actinote jucunda* sp. nov.

♂. Similar to *A. callianira* Geyer (1837). Cell of forewing longer. Pronotum with orange spot at each side. Markings of forewing chrome-orange, lighter than in *A. callianira*; the discal band interrupted by the black veins, the two last spots much shorter than the preceding ones, being much reduced from the proximal side. Hindwing without the greyish blue sheen of *A. callianira* from Pern.

On *underside* the costal edge at base orange like basal patch and discal band; hindwing streaked with orange-rufous, part of the cell and a submarginal shadow more or less distinctly buffish cream-colour.

♀. Basal patch of forewing vestigial; discal macular band paler than in ♂, much suffused with black.

On *underside* the basal patch and discal band of forewing dull orange; hindwing and apex of forewing pale buffish cream-colour, thinly streaked with brownish black.

Four ♂♂ and one ♀ from Bolivia; type from Rio Tanampaya (Garlepp).

25. *Actinote callianira euris* subsp. nov.

♂. Markings of forewing, *above*, scarlet, interspace between them broader than the discal band.

On *underside* these markings but little paler than above, discal band occasionally with a yellow tint at its outer edge. Hindwing pale buffish grey, streaked with blackish brown, an ill-defined band from apex of cell to costal

margin more or less chestnut, a marginal band of about 2 mm. width the same colour or blackish.

♀. Much larger than ♂, slightly paler, otherwise similar.

A long series of ♂♂ and five ♀♀ from various places in Southern Peru: Carabaya, Cuzco, Marcapata; type from between La Oroya to Aguasani, October 1904 (G. R. Ockenden).

26. *Actinote callianira stenia* subsp. nov.

♂. Like the preceding; the basal patch of forewing more extended and therefore the black interspace between it and the discal band narrower, being narrower than the discal band itself, excepting specimens in which this band is only about $3\frac{1}{2}$ mm. broad at its widest point; the discal band narrower from R^3 to costal edge than in the preceding form.—Hindwing brighter glossy blue, less greyish blue.

On *underside* the discal band of forewing more often edged with yellow distally than in *euris*.—Hindwing much darker, the buffish grey streaks much reduced in purity of colour and width, being prominent only in and before cell.

♀. Basal patch of forewing extending to outer angle; black interspace between it and discal band narrower than in *euris*.—Hindwing beneath less pure buffish grey.

A series of ♂♂ and two ♀♀ from Chanchamayo and Huancabamba, Eastern Peru, north of the districts where *euris* occurs, and south of those in which *callianira* is found.

27. *Actinote hilaris* sp. nov.

♂. Allied to *A. callianira* Geyer (1837), which it resembles closely on upperside. Spot M^1 — M^2 of discal band of forewing very small or absent; the blue sheen on hindwing much feebler and present all over the wing.

On *underside* the discal band of forewing edged with white on distal side.—Hindwing white from base to beyond apex of cell, the outer edge of this white area running from costal margin, about 5 mm. from apex, to anal angle, being slightly excurved at R^2 and incurved below centre; parallel with this edge is a thin black line, which runs from costal margin across apex of cell, disappearing before reaching abdominal margin; this line is anteriorly the outer border of a triangular patch or band, which tapers behind, and varies in extent and colour, being either fuscous or orange; marginal area dark brown, the edge of wing (not the fringe) spotted with orange; the usual stripes on and between the veins well marked in the white area.

♀. Similar to ♂; ground-colour paler, orange-red marking duller.

On *underside* the white colour replaced by buff on forewing and buffish grey on hindwing, and much reduced; the black line on hindwing less prominent.

In both sexes the lower angle of cell in fore- and hindwing more produced than in *A. callianira*.

Five ♂♂ and one ♀ from Chanchamayo district and Huancabamba, Peru; type from Rio Toro.

The *underside* of the hindwing recalls that of *A. eresina* Hopff. (1874).

28. *Actinote nicylla sobrina* subsp. nov.

♂. Paler orange than *A. n. nicylla* Hopff. (1874), especially on the underside, where the discal band has a distinct yellow tone.

On *upperside* the basal area extends at hindmargin close to angle; spot M^1 — M^2 of discal band larger than in *A. n. nicylla*; black border of hindwing broader, being at R^3 about twice as broad as its distance from the cell.

On *underside* the cell of forewing bears an orange dot in apex (which, in other specimens, may be joined to the basal area); hindwing with distinct grey streaks on disc, the orange-tawny streaks not suppressed by fuscous at margin.

One ♂ from Rio Huayabamba, S.E. of Chachapoyas, North Peru (O. T. Baron).

Connects *A. n. nicylla* with the next race.

29. *Actinote nicylla scotosis* subsp. nov.

♂. Orange markings as in the preceding form, but discal band beneath less yellowish, on upperside (as well as underside) usually followed by a small spot below M^2 ; in apex of cell of forewing an orange spot in nearly all specimens, either on both sides or only beneath, the spot being isolated or joined to the basal area; black interspace between the basal area and discal band as a rule narrower than in *A. n. nicylla*. Black border to hindwing much broader than in *A. n. nicylla*, also along abdominal margin.

On *underside* the marginal area of the hindwing, sometimes almost the whole wing, so much suffused with black that the streaks are nearly suppressed.

♀. Similar to orange ♀♀ of *A. n. nicylla*; the basal area of forewing much purer in colour, more sharply defined; discal band yellowish orange above and beneath, its last spot (between M^1 and M^2) larger than in *nicylla*; border of hindwing broader.

A series of ♂♂ and one ♀ from Zamora, Ecuador (O. T. Baron).

30. *Actinote leontine hypsipetes* subsp. nov.

♂. On *upperside* the tawny orange area smaller than in *A. l. leontine* Weym. (1879), not enclosing a black cell-spot; discal band buffish chrome-yellow. Black border of hindwing about as broad in centre as its distance from cell, extending around anal angle, abdominal margin and base more fuscous than in *leontine*; black internervular streaks heavy.

On *underside* the hindwing and apex of forewing cream-buff as in *leontine*, streaked with black; cell of forewing with an orange or buff dot at apex; around apex of cell of hindwing a brown shadowy band.

Five ♂♂ from near Cajamarca, North Peru, 10,000 ft., May 13 (O. T. Baron).

31. *Actinote leontine catochaera* subsp. nov.

♂. A small form. Basal area of forewing, above, as in *leontine*, but deeper in tone, enclosing a black cell-spot which is joined to the black costal margin; discal band only a little paler than the basal area.—Hindwing as in *hypsipetes*, but the black border narrower than its distance from cell.

On *underside* the apex of forewing hardly at all streaked, being nearly black, the yellow discal band therefore sharply defined also distally.—Hindwing yellowish or grey, with a narrow black distal border, about 2 mm. wide anteriorly, and a rather sharply defined, prominent, brown band around apex of cell from costal margin to M^2 or beyond.

Two ♂♂ from San Pablo, North Peru, 2000 m.

32. *Actinote leontine mesia* subsp. nov.

♂. Similar to *A. l. leontine*; as in that form the black border of hindwing very strongly tapering posteriorly, being restricted to the extreme edge of the wing; proximal area of forewing reaching close to outer margin at SM².

On *underside* the apex of forewing is brown-black with the streaks very feebly marked, the yellow discal band therefore sharply defined, as in *catochaera*; outer half of hindwing blackish brown, with or without a band of creamy buff streaks midway between cell and outer margin.

Three ♂♂ from Cuenca, Ecuador, 2000 m., May 1899 (Simons).

33. *Actinote momina* sp. nov.

♂. Resembles *A. nicylla* Hopff. (1874), which occurs in the same district. Palpi without light-coloured scaling at sides. On *upperside* the basal area of forewing extended to hindmargin, the streak situated below SM² being well developed, while it is very thin or absent in *A. n. nicylla*; the veins traversing the discal band distinctly black, the band therefore more broken up, spot R³ of band often with pale centre. Black border and streaks of hindwing broader than in *A. nicylla*, the former less sharply defined, the abdominal area shaded with black.

On *underside* the discal band of forewing stops at fold between M¹ and M²; apical area streaked with orange-tawny, at hind angle within the black band a thin admarginal line of the same colour, usually joining the orange proximal area, which is more or less produced distad at SM².

♀. Palpi with pale scales at sides.—Forewing shorter than in ♀ of *A. nicylla*; markings as in ♂, but less pure in colour, basal area much shaded with black.—Hindwing pale buff, shading off into orange-tawny from apex of cell, black border broader than in ♀ of *A. nicylla nicylla*, not sharply defined, the black streaks broad.

On the *underside* the whole hindwing (excepting a feeble brown shadow around apex of cell) and the apex and costal margin of forewing buff-grey streaked with black-brown.

In both sexes the lower angle of cell in fore- and hindwing more produced than in *A. nicylla*; the distance from the point where the setiferous cell-fold of the hindwing joins the cross-veins to the origin of M² being about the same as the distance from the former point to the lower angle of cell, while in *A. nicylla* the former distance is much the larger.

A series of ♂♂ and one ♀ from Peru: Huancabamba (near Cerro de Pasco); Callanga, Cuzco; Rio Toro, Chanchamayo district. Type from Rio Toro.

NEW SATURNIIDÆ.

By K. JORDAN.

1. *Antheraea castanea* sp. nov.

Similar to *A. assamensis* Helf. (1837). *Upperside* of body and wings chestnut, being of a much deeper colour than in *A. assamensis*.—Forewing more pointed and its distal margin more deeply incurved; the submarginal line anteriorly nearer the edge and posteriorly farther away from it than in *assamensis*, the marginal area more extensively dusted with white; the veins blackish except beyond submarginal lines; the proximal fourth of the ocellus black.—The inner discal line continued anteriorly around the ocellus and joining the antemedian line, in ♀ the white less prominent than in ♀ of *assamensis*.

Underside also much darker than in *assamensis*, the white scaling therefore more conspicuous; both wings with a row of white submarginal crescents.

Genitalia likewise different.

Four ♂♂ and three ♀♀ from the Khasia Hills, Assam.

2. *Salassa mesosa* sp. nov.

♂♀. In size intermediate between *S. lola* and *megastica*; in structure and facies nearest to the latter. Mesonotum without the white transverse band of *S. megastica*. Antenna a little darker. On the wings the bright ferruginous colour more restricted, the vitreous discocellular spots much smaller; the antemedian line white as in *S. megastica*, but not quite so oblique posteriorly. On hindwing the orange ring of the ocellus not extended beyond the black discal line, the white border of this line of nearly even width throughout, being anteriorly hardly wider than posteriorly; the black submarginal line not bordered with white. On the underside the white line of the forewing is not distinct at the costal edge; that of the hindwing crosses C beyond the centre of this vein.

♂. Antenna as in *S. megastica*, but with only 44 to 46 segments. Vitreous spot of forewing not larger than in *S. lola*, reversed comma-shaped, with three sharp angles. Vitreous spot of hindwing about the same in size and shape as on forewing, surrounded with black as in *S. megastica*, the black colour occupying much more space than the vitreous spot, incurved distally, the white line kidney-shaped.

Genitalia: apical process of anal tergite longer and less curved than in *S. megastica*; the two lobes of the clasper a little farther apart.

♀. Rather more uniformly brown than the ♀ of *S. megastica*; the ferruginous discal band of the forewing narrower, prominent on the dark ground. Vitreous spot of forewing triangular, its costal angle produced and curved distad, the posterior side of the triangle (in front of R³) 5—8 mm. long. Vitreous spot of hindwing smaller than the one on forewing, about the same size and shape as in ♂ *S. megastica*, reversed comma-shape; the black ring much as in ♂, occupying more space than the vitreous spot, little or hardly at all incurved on the distal side, the white ring more prominent than in *S. megastica*.

Several ♂♂ and ♀♀ from the Khasia Hills, Assam.

3. *Salassa iris* sp. nov.

A large species. Bright ring of ocellus of hindwing at least partly yellow. The sexes differing as in *S. thespis* Leech (1890).

♂. Ferruginous, a little paler than in ♂ of *S. lola*. Antenna with 44—46 segments; the branches as in *S. lola* with few strong bristles, the apical branches of each segment being much longer than in *S. megastica*, *thespis*, and *mesosa*.—Forewing longer and narrower than in the other species, the apex much more produced, the distal margin concave from apex to M^2 ; costal margin straight to distal line, then very strongly arched and before the apex distinctly incurved; antemedian line placed as in *S. lola*, less curved costally, more curved posteriorly; vitreous spot reversed comma-shaped or luniform, narrower posteriorly than in *S. megastica*; discal line more curved costally than in *S. lola*, a yellowish patch between greyish white apical patch and ferruginous discal band.—Hindwing pervaded with yellowish in apical area; ocellus nearly as in *S. megastica*, the vitreous spot variable in size, the black ring broader on proximal side and less incurved distally than in *S. megastica*, the orange a little lighter in tint, bordered with yellow anteriorly and extending to the black discal line but not beyond it, the grey space in front of and proximally to the eye as in *S. megastica*, darker than in *S. lola*, and posteriorly not extending beyond hind border of cell, not reaching around the ocellus; white border of black discal line anteriorly more distinct than farther back, between it and submarginal line a broad diffuse blackish brown line as in *S. megastica*, the submarginal line anteriorly without white border.

On *underside* the discal line of forewing more curved in S-shape than in the allied species, the brown submarginal line as much zigzag as in *S. megastica*, but narrower and placed nearer the margin; the area between this line and the discal one much more yellowish; the discal line of hindwing placed as in *S. megastica*, but its white border, as is also the case on forewing, less prominent; very little white scaling along the submarginal lines on both wings.

♀. *Upperside* of body and wings cinnamon-drab, the wings shaded with ochraceous tawny or ochraceous. Antemedian band of forewing broadly bordered with white, angulate much below cell, not on median vein, reaching costa just proximally to the point where the first subcostal branches off from cell; vitreous spot nearly circular, but emarginate distally, diameter 5—6 mm.; discal line in S-shape, with eight large vitreous dots.—Hindwing with a similar line, bearing six or seven such spots; black and vitreous portions of eye-spot larger than in ♂, the vitreous spot tear-shaped, with the narrow anterior portion curving distad, the posterior portion almost touching the white ring; the black ring broader anteriorly on the basal side of the vitreous spot than in *S. megastica*, slightly incurved distally; the ring following pale yellow, slightly orange internally along the black; its distal portion shaded with black, about the same in width as the basal portion, and touching the discal line.

On *underside* drab or cinnamonaceous drab, paler than in ♀ of *S. lola*, the discal line of both wings placed as in ♂, that on hindwing crossing C proximally to centre; on both wings a narrow shade along inner side of discal line, the submarginal zigzag line and the distal border (the latter two more or less confluent) dark brown. Antenna with 44 or 45 segments.

Several ♂♂ and two ♀♀ from Sikkim.

4. *Lobobunaea callista* sp. nov.

♂. Pronotum and claspers ochreous, meso- and metanotum and base of abdomen deep ferruginous, shading off into the ochraceous tawny colour of the rest of the abdomen. Breast ochreous, underside of abdomen chocolate-brown.

Wings, *upperside* bright orange-rufous. Apex of forewing obtuse, rounded, outer margin slightly convex between apex and R^2 ; costal margin ochre-yellow, this colour entering the cell a very little and extending a little below vein SC^5 on disc, while it is limited by that vein near outer margin, where a large patch of yellow-ochre is enclosed in the marginal band; this band blackish drab with a faint purple tint, nearly even in width, measuring 14—18 mm. in width, incised at the veins on discal side, the lobes thus formed rounded; at the proximal side of this border a row of lunules of the same colour, and about half-way to cell another line of lunules, of which the costal one is the heaviest, the two lines anteriorly diverging, posteriorly nearly parallel.—Hindwing with a marginal border similar to that of forewing, more sharply defined, broader behind than anteriorly, at its proximal side a feeble lunate line; ocellus black with pale centre as in the allied species; costal margin of wing less rounded than in the other species of *Lobobunaea*, abdominal margin shorter, anal angle more rounded, apical angle more distinct; fringe of both wings ochreous shaded with fuscous.

Underside ochreous buff; the markings walnut-brown; on both wings the discal line zigzag, touching the discocellular patch, which is both proximally and distally rounded; the outer third of the wings occupied by a walnut border, which measures 23 mm. in width at the widest points on both wings, the inner edge of this border almost regularly lobate between the veins, the edge corresponding to the second line of the allied species, being deeper in tone than the greater part of the border, especially on the hindwing; on forewing lobes 2, 5, and 7, and on hindwing 4, 8, and 9 project less towards disc than the others; a very large portion of the border is toned down to deep fawn, this colour extending close to edge of wing, the proximal parts of the border remaining walnut-colour, especially costally; at apex of forewing a triangular marginal, partly ochreous buff patch bordered behind by vein SC^5 ; at apex of hindwing the fringe ochreous and the edge of wing not walnut-brown as it is from R^1 backwards.

Length of forewing: 80 mm.

One ♂ from Ocilonda, Bihé, Angola, October—November 1907 (E. Sanders).

5. *Bunaea cafraria nubica* subsp. nov.

♂. Head and thorax above and beneath, as well as base of wings above, a little deeper than in the West African *alcinoë*. Apex of forewing much less produced than in the other forms of *cafraria*; vitreous spot nearly 3 mm. distant from the thin discal line at R^3 , distinctly edged with orange on the proximal and distal sides, less on the hind side. Iris of ocellus of hindwing orpiment-orange, deeper in tone than in *cafraria* and *alcinoë*; the white ring of the ocellus not quite completely separate from the discal line and proximally connected with the antemedian line; the area between the antemedian and discal lines with a little vinaceous on vein SM^2 .

On *underside* the basal area of forewing deeper vinaceous red than in *alcinoë*. Hindwing greyish white from base to a little beyond point of origin of SC^2 , outer

edge of this area sharply defined and quite straight, crossing cell proximally to M^1 ; fuscous discal line strongly incurved before abdominal margin.

Anal tergite with a prominent tubercle dorsally at base.

One ♂ from Singa, Blue Nile, July 29, 1909 (Captain S. S. Flower).

6. *Imbrasia cleoris* sp. nov.

♂. Head blackish chestnut; thorax above olivaceous chestnut; metanotum, base of abdomen, and underside of thorax vinous red; rest of upperside of abdomen vinaceous tawny olive; underside of abdomen dark chestnut; tibiae and tarsi olivaceous black.

Wings, *upperside*, moss-brown, with a vinaceous tone; two rather thick black lines cross both wings, an antemedian one from costal margin proximally to origin of SC^1 , almost straight across the wing, angulate at SC and in the inverse direction again angulate at M^2 ; on outer side this line bordered with pinkish white in anterior half, this border disappearing behind; a nearly straight discal line 6 mm. from ocellus and 12 mm. from outer margin before R^3 , narrowly edged with pinkish white at discal side, this border widening at costal margin, no dark or light-coloured line on inner side of this white one; veins black on disc and beyond discal line; fringe blackish brown; ocellus very small, ovate, transverse, consisting of a vitreous centre, a yellow ring, and an ill-defined blackish ring; apex of wing less produced than in *I. anthina* Karsch (1893); no distinct submarginal patch.—Hindwing vinous red from base to discal line, slightly washed with tawny in abdominal area; marginal area a little paler, more olive-tawny, than on forewing; antemedian line straight, oblique, angulate before abdominal margin; discal line nearly parallel to margin, 12 mm. from margin at R^1 and 7 mm. at SM^2 , rounded excurved behind R^1 and very feebly incurved before abdominal margin; the whitish borders of the two lines not prominent; ocellus small, consisting of a vitreous dot, a cadmium-yellow iris, a black ring, and a reddish white ring; outer margin nearly evenly rounded, not elbowed; fringe blackish brown.

Underside vinaceous chocolate shaded over with pinkish grey; a band of the dark ground-colour runs across both wings, being placed on forewing just outside the ocellus and on hindwing enclosing the ocellus, on forewing gradually widening anteriorly and on both wings posteriorly almost touching the black discal line; this line is slightly curved apicad on forewing and is straight on hindwing, its distance from margin is on forewing 9 mm. at SC^2 and 10 mm. at M^2 , on hindwing 8 mm. at SC^2 and at SM^2 ; outside this line a band of the ground-colour and another band of the same colour along margin, the two bands separated by a pinkish grey band which is indented on distal side at the veins; ocellus small on both wings, consisting of a vitreous dot edged with yellow, transverse on forewing, round on hindwing; basal area of forewing vinous red, especially below cell.

Length of forewing: 58 mm.

One ♂ from the foothills of Mt. Mikeno, north of Lake Kivu, 1900—2400 m., October 1907 (R. Graner).

Allied to *I. anthina* Karsch (1893); easily recognized by the outer margin of the hindwing being almost evenly rounded, the absence of grey submarginal patches from the upperside of the wings, and on the underside by the deep chocolate band which runs on the forewing on the outer side of the ocellus and on the hindwing across the ocellus.

Also near *I. gueinzii nyassana* Rothsch. (1907), which is a much paler insect with narrower forewing and a submarginal band of grey patches on the upperside of it.

7. *Opodipthera fervida* sp. nov.

♂. Yellowish orange, of a much brighter tint than the ♀ of *O. astrophela* Walk. (1855). Branches of antenna longer.

Upperside: forewing broader, the veins purplish brown between discal line and cell and a little beyond discal line; this latter with a more prominent whitish border; proximal half of outer ring of ocellus reddish, thicker than outer half.—Hindwing with a straight purple-brown line proximally to ocellus; discal line heavier than in *astrophela*; ocellus round, its diameter equalling the distance of the ocellus from the discal line, outer ring thicker than in *astrophela*.

Ground-colour of *underside* a little paler than above, much shaded with pink-grey; ocellus on both wings conspicuous, round, vinous red or pinkish ochraceous, with the white ring complete.

Genitalia different from those of *O. astrophela*.

♀. Vinaceous tawny above, the hindwing especially being much suffused with vinous red, iris of ocelli dull orange, otherwise the wings as in ♂.

Underside almost uniformly vinous red, strongly recalling *O. loranthi* Lucas (1892); the proximal half of the outer ring of the ocellus as in ♂ vinous red, outer half black, iris pinkish ochraceous.

Larva black; head, first segment, and all the tubercles red; a green stripe below spiracles, the other four green stripes found in *O. astrophela* not present.

Two ♂♂ and one ♀ from Kuranda, near Cairns, North Queensland (F. P. Dodd); also a dozen larvae obtained from the same very able collector.

8. *Automeris falco* sp. nov.

♂. Closely resembles *A. liberia* Cram. (1780) = *megalops* Walk. (1865). The black belts on upperside of abdomen broader.—Forewing produced into a hook which is much longer than in *A. liberia*; discocellular patch outlined by four very conspicuous black dots, three at outer side and one at lower inner corner; discal line nearer the margin, edged on inner side by a prominent yellowish buff line.—Hindwing as in *A. liberia*, but the clayish marginal band a little narrower at anal angle than in that species.

Underside slightly paler than in *A. liberia*; the ocellus transverse, narrower than in *A. liberia*, twice as long as broad, its white central dot exceedingly small; discal line more oblique, owing to the apex of the wing being so strongly produced.

Tenth abdominal tergite club-shaped.

Two ♂♂ from La Union, Rio Huacamay, Carabaya, South-East Peru, 2000 ft., December 1904 (G. R. Ockenden).

9. *Automeris moerens* sp. nov.

♂. Allied to *A. amanda* Schans (1900). Abdomen with black bands above, ocellus of hindwing without yellow ring.

Upperside of head and thorax blackish mummy-brown, abdomen reddish tawny, the bases of the segments olive-black. *Underside* entirely deep sepia.

Wings, *above*.—Forewing blackish olive, much variegated and shaded with white (in fresh specimens), antemedian line indistinct, broken up into spots, discal line also more or less interrupted at the veins, accompanied by white lunules, slightly S-shaped, at right angles to costal margin, which it reaches about 10 mm. from tip, while it crosses M^2 about 13 mm. from margin; from inner side of this line, at R^3 , emanates a narrow band of the ground-colour which reaches costa about 6 mm. from discal line and proximally forms an acute angle with the costal margin; a row of white submarginal spots, spots 5 and 6 (placed between R^3 and M^2) nearer the margin than spots 3, 4, and 7; at base a white dot.—Hindwing blackish olive, a small basal patch olivaceous tawny; ocellus as in *A. amanda*, black centre smaller, iris the same colour as the disc of wing; black ring not edged with yellow or tawny; between ocellus and margin two olive-black, slightly innulate lines, separated from one another by some grey scaling, second line much widened at anal angle, externally bordered by white.

Underside dark sepia-colour; discal and submarginal lines more or less bordered with olive-grey, especially on the forewing; ocellus inconspicuous, transverse; white stigma of hindwing very conspicuous.

Tenth abdominal tergite long, without the dorsal club-shaped process which is present in *A. amanda* Schaus (1900), *proximus* Conte (1906), and *abdominalis* Feld. (1874).

Length of forewing: 41—46 mm.

Three ♂♂ from La Union, Rio Hnacamayo, Carabaya, South-East Peru, 2000 ft., December 1904 (G. R. Ockenden).

10. *Automeris grammodes* sp. nov.

♂. Head and thorax above ochraceous, abdomen lighter, bases of the segments darker; underside buffish ochre.

Upperside: forewing narrow, ochraceous, very slightly irrorated with fuscous, discocellular patch with a conspicuous white central dot; a black line from apex of wing, which is acute but not produced, to two-fifths of hind margin, practically straight, of even width, bordered on inner side by a conspicuous yellow line; no submarginal line.—Hindwing entirely orange-ochraceous; a black discal line half-way between ocellus and margin, parallel to the latter, but more strongly curving basad at abdominal margin; no submarginal line, but edge of wing and base of fringes pinkish; ocellus black with a white central dot, diameter about the same as the distance from discal line.

Underside maize-yellow, costal area of both wings washed with pinkish ochraceous; black discal line of forewing fading away towards hind margin; ocellus very small (diameter about $1\frac{1}{2}$ mm.), with white central dot.—Hindwing with a rather ill-defined brown, straight line from near tip of costal vein to three-fifths of abdominal margin.

♀. Larger than ♂, similar; brown belts of abdomen very distinct; the white dot on both wings larger, being very prominent; diameter of the somewhat angulose ocellus of hindwing more than twice the length of the distance from discal line; the latter bordered on outside by a faint pinkish ochraceous line.

On *underside* the ocellus of forewing larger than in ♂, irregular, with large white dot; hindwing as in ♂ without white dot, more irrorated with black than in the other sex.

Length of forewing : ♂ 28 mm. ; ♀ 38 mm.

Breadth of forewing : ♂ 15 mm. ; ♀ 20 mm.

One ♂ and two ♀♀ from Santo Domingo, Carabaya, South-East Peru, about 6000 ft., May and December 1902, January 1903 (G. R. Ockenden). A smaller ♂ (length of forewing 25 mm.) from the Rio Huacamayo, Carabaya, 3100 ft., June 1904 (G. R. Ockenden).

11. *Hyperchiria aniris* sp. nov.

♂. Similar to *H. nausica* Cram. (1779); lines of forewing much less oblique, being about parallel to outer margin, first line reaching costal margin proximally to discocellular spot, second line yellowish, third incurved, its distance from second at R^3 only one-third the distance between second and first.—Ocellus of hindwing quite black with a minute white dot; costal margin evenly convex, not lobate.

Three ♂♂ from Potaro, British Guiana, May 1908 (S. M. Klages).

12. *Eacles adoxa* sp. nov.

♂. Near *E. eminens* Dogn. (1891), smaller. Forewing pointed, outer margin slightly and evenly concave, hind angle less rounded than in *eminens*; marginal area entirely dark tawny except for a small bar-like spot situated before hind angle, the grey shading in this area more extended than in *eminens*.—Hindwing more ovate than in all the other species of *Eacles*, the distal margin being very strongly convex below centre; as in *eminens* a slightly excurved line on outer side of discocellular spot; the whole area from this line to margin, *i.e.* more than half the surface of the wing, dark tawny, with a broken up yellow patch in its posterior half away from the line, there being also a narrow yellow border to the outside of the line posteriorly; fringe of both wings spotted with white.

Underside buff-yellow, both wings speckled with blackish brown, except before hind margin; the greater part of the forewing, especially the outer margin and the area from the centre of the outer margin towards the subapical portion of the costal margin, much shaded with tawny brown; the same is the case on the hindwing from costal margin to cell, and particularly in a triangular apical area of which the inner edge extends from the discal line at R^1 to the tip of M^1 ; the outer edge and fringe of both wings deeper brown, the latter spotted with white as above; line very distinct on both wings, not interrupted and not dentate, very broad on hindwing.

M^2 of hindwing originates at a greater distance from base than SC^2 . The hindwing recalls in shape that of certain Lasiocampids, *e.g.* *G. quereifolia*.

Length of forewing : 42 mm.

One ♂ from Potaro, British Guiana, May 1908 (S. M. Klages).

MISCELLANEA ORNITHOLOGICA :

CRITICAL, NOMENCLATORIAL, AND OTHER NOTES, MOSTLY ON
PALAEARCTIC BIRDS AND THEIR ALLIES.

BY ERNST HARTERT, PH.D.

PART VI.*

(Plate VII.)

THE GENUS *SAXICOLA*.

ONE of the most interesting genera of *Oseines* is the genus *Saxicola*. With regard to the limits of the latter I may only say that I, on the whole, fully agree with Seebohm, who very wisely limited it in Vol. V. of the *Catalogue of Birds*. It is quite impossible to separate the so-called "*Dromolaea*," as both in structure and biology that supposed genus does not stand well circumscribed, but is connected with so-called true *Saxicola* by intermediate forms.

A very peculiar character, like a landmark or label, is the white—or in a few cases bright rufous—rump, which is peculiar to all palaearectic species. The sexes are mostly different, but in some species alike.

With regard to the species and subspecies I should like to make the following remarks.

***Saxicola oenanthe*.**

Of all the species of the genus *Saxicola* this has been the most puzzling one to me. I do not think that any geographical forms can be separated on the European continent, nor do I believe that the British form is separable. In the East, however, things are different, for we find in winter, in N.E. and E. Africa, many specimens with very long bills—culmen to very nearly 20 mm.—and long-billed are the examples breeding in Syria. These forms have also very light edges to the upper wing-coverts and quills. It is therefore quite logical to separate them as *S. oenanthe rostrata*, for *rostrata* is the name given to long-billed specimens from Upper Egypt, North Arabia, and Syria by Hemprich & Ehrenberg. Unfortunately, however, the distribution of this form is not yet well known, and specimens from Greece, Egypt, and occasionally such from Turkestan, have rather long bills, and those from Sardinia sometimes reach, in the length of their beaks, true *rostrata*, while others from the same island have short bills.

Another ill-defined and little understood form is *S. oenanthe argentea* Lönnerberg. It was described from a few specimens from south of Lake Baikal (Bura, Kjachta, Kiran). Although, in my opinion, the author hardly had sufficient material to name this form, it cannot be denied that a rather light back, wide white forehead, and light edges to the wings are more or less peculiar to many adult males from Central Asia, viz. Turkestan and Transcaspia, and that therefore the name *argentea* cannot be treated as a synonym.

* For Part I. see *Nor. Zool.* 1904. pp. 456-60; for Part II., *Nor. Zool.* 1905. pp. 497-503; Part III., *Nor. Zool.* 1906. pp. 386-405; Part IV., *Nor. Zool.* 1907. pp. 335-9; Part V., *Nor. Zool.* 1908. pp. 395-6.

The distribution of *S. oenanthe argentea*, however, is not yet known. Specimens from Northern Siberia (Lena) do not seem to belong to *argentea*, their bills being on the contrary rather short, while those of *argentea* are rather long as a rule, though not so long as in most *rostrata*.

A form which is much better defined is the large "*leucorhoa*." This was for the first time named from migrants in Senegambia, but it breeds in Greenland, while the birds from Iceland and the Farøer are said to be the same, although it appears that a small series of Iceland specimens have the wings not longer than 100 mm., while in Greenland they are sometimes as long as 110 mm., others, however, being smaller.

On migration this large form—or these large forms—pass through England and continental Western Europe, the Canaries and Azores, and North-West Africa as far east as Tunis. They have several times been recorded from Egypt and Nubia, but evidently erroneously. Mr. Kleinschmidt (*Berajah*, i. pp. 5, 6) mentioned already very large specimens, which nevertheless are not *leucorhoa*; and I have recently, through the kindness of Mr. Nicoll, been able to compare the specimens mentioned by him under the name of *S. oc. leucorhoa* in *Ibis*, 1909, p. 287, and they are certainly not *leucorhoa*. Instead of being rather brownish, they are very light, and, though their wings reach 100 mm., they are not *leucorhoa*, but apparently belong to Lönberg's *argentea*. The easternmost locality for *leucorhoa* therefore remains Tunisia, where it is rather rare.

The most distinct subspecies of *S. oenanthe* is *Saxicola oenanthe seebohmi*. The male differs strikingly by having an entirely black throat—nevertheless I agree with Kleinschmidt (cf. *Berajah*, i.) that *S. seebohmi* can be treated as a form of *oenanthe*. Its habits, song, and nest and egg, are like those of *S. oenanthe oenanthe*, and the females are not at all easy to distinguish. *S. oenanthe seebohmi* was discovered on the Djebel Mahmel in Algeria, and has been found also on some of the neighbouring mountains, while Rüggenbach obtained an example in the Southern Atlas in Morocco.

Saxicola deserti.

Saxicola deserti deserti inhabits the Sahara from the Atlantic Ocean (Cape Blanco, 21°, collected by Comte de Dalmas) to Egypt, Nubia, and Arabia. On the whole Egyptian and Nubian examples agree best with Tunisian and Algerian ones, and those from the Natron Valley, collected by the Hon. N. Charles Rothschild, are perfectly like the western ones; nevertheless some of the Nubian birds are intermediate, and the true Asiatic form appears sometimes in winter in Nubia and at Khartoum. The Asiatic form, which is darker, with more of a brownish and greyish tinge, must be called *S. deserti atrogularis*, Blyth having given the name *atrogularis* to specimens from Western India in 1847. It has been customary of late to acknowledge two "species" in Asia, one being called *S. deserti*, the other *S. montana*, renamed *oreophila* by Oberholser, because the name *Saxicola montana* had been preoccupied. The latter "species" had been separated because the white at the basal portion of the inner webs of the quills is wider, and the wings are longer. There is, unfortunately, no constancy in these characters, as there is every intermediate between specimens with more white on the quills and others which have only a narrow white border, like Saharan examples, and every intermediate in size as well. Moreover both supposed species occur, as far as I can find out, over

the same area. On the other hand the darker, more brownish or greyish tinge is evident in all Asiatic specimens, and we therefore have to recognize two forms :—

S. deserti deserti from Africa (broadly speaking).

S. deserti atrogularis from Asia (broadly speaking).

Saxicola "stapazina" and "aurita."

Under these two names two distinct species have been generally recognized by all ornithologists. The oldest name referring to these birds is *Motacilla hispanica* Linnaeus, *Syst. Nat.* ed. x. p. 186 (1758). It is taken entirely and solely from Edwards, *Orn. Nov.* i. Taf. 31, where a black-throated specimen ("*stapazina*" anct.) and a white-throated one ("*aurita*" anct.) from Gibraltar, both males, were figured and described as male and female of one species. Evidently Edwards and his correspondent were aware that both belonged to one and the same species, but were mistaken in concluding that they were the two sexes. Afterwards the two forms have been looked upon as two different species for more than a century, although now and then an author would remark that the males differed only by a black or white throat, and that the females were alike. Other authors (Dresser and Koenig for example) described individually different females as the true females of the two supposed species, but they were in error. Recently Kleinschmidt has been the first to raise the question of the possible identity of the two forms, and interesting notes, showing this to be quite probable, have been published by Schiebel and Othmar Reiser. A careful study of a large material of skins, and personal observations in Algeria together with Mr. Rothschild, have left no doubt for me that the two supposed species are merely individual varieties. These are well marked, and mostly very constant, as is well known, in the males, while the females have mostly a buff throat, but not infrequently a more or less black throat, as described p. 686 of Vol. I. of my book on the birds of the palaearctic fauna. In the eastern form, *Saxicola hispanica canthomelana* Hempr. & Ehrbg., females with black throats are not at all rare, while in the western one, *Saxicola hispanica hispanica* (L.), they are not often met with, but Mr. Witherby has shown me that they exist.

Phoenicurus erythrogastra.

In his book on *The Eggs of the Birds of Europe*, in "Parts III. and IV.," Mr. Dresser describes for the first time the egg of the Asiatic form of Gldenstdt's (not Gldenstadt's) Redstart, which was sent to him as coming from Issik-Kul in Turkestan. Mr. Dresser says: "I agree with Dr. Pleske in not separating the eastern form from that inhabiting the Caucasus." Mr. Pleske, however, said just the contrary, namely: "An exact comparison of a rather considerable number of Caucasus specimens with a large series of Central Asian birds has convinced me of the correctness of Mr. Lorenz's view of the necessity of separating the two forms as subspecies" (translated from *Aves Przewalskianae*, i. p. 58). Pleske therefore names the bird in question *Ruticilla erythrogastra* var. *Ssewerzowi* Lorenz. The older name of the Asiatic form is of course *Ruticilla grandis* (Gould, *P. Z. S.* 1849. p. 112), and the bird from Central Asia must therefore be called

Phoenicurus erythrogastra grandis (Gould).

The differences between the two forms have also been very clearly explained by Dr. Rothschild in *Nor. Zool.* 1897. p. 167.

THE GENERIC NAMES TESIA AND OLIGURA.

In 1837 Hodgson (*Journ. As. Soc. Bengal*, 1837, p. 101) created a genus under the name *Tesia*. It embraced four species: *T. cyaniventer*, *T. flaviventer*, *T. albiventer*, and *T. rufiventer*.

In 1845 (*Proc. Zool. Soc. London*, xiii. pp. 24, 25), having recognized that these four species were not congeneric, he established two other genera: on p. 24 the genus *Pnoepyga*, embracing *albiventer* and *rufiventer*, also a formerly unnamed species, *P. pusillus*. He says that his genus *Pnoepyga* is "olim *Tesia*," but this is not quite correct, as I have explained above. Therefore the two Wrens, *Pnoepyga albiventer* and *pusillus* (*rufiventer* being the female of *albiventer*), having been taken out and separated, the name *Tesia* remains as the generic term for the two species *cyaniventer* and *flaviventer*, but Hodgson (*Proc. Zool. Soc. London*, xiii. p. 25) renamed them *Oligura*, a name which thus quite clearly is a synonym of *Tesia*. If the two species—unnecessarily in my opinion—are placed in two different genera, the name of *Tesia* might be restricted to *cyaniventer*, the first species mentioned, but *Oligura*, being a strict synonym of *Tesia*, cannot be used for *flaviventer* (a name preoccupied by *castaneocoronata* of 1835), and a new generic name would have to be created for the latter. As I have said above, I consider this separation unnecessary.

In my former notes on *Tesia castaneocoronata* I have, by a slip of the pen, called the latter *castaneocentris* (*Nor. Zool.* 1907. p. 337).

THE GENUS SPELAEORNIS.

In 1877 Messrs. David & Oustalet created this genus for the two species *trogodytoides* and *halsueti*, both from China (*Ois. Chine*, p. 229). In 1881 our late friend Sharpe created a new genus *Urocichla*, separating it—according to his key—from *Spelacornis* merely by a somewhat longer bill and, one would understand from his words, by a less thickened operculum over the nostrils (*Cat. B. Brit. Mus.* vi. pp. 181, 263). Neither of these differences is of any generic value, the greater length of the bill being present to the extent of about 1—2 mm. only, and the thicker membrane over the nostrils not at all!

Therefore *Urocichla* is a pure synonym of *Spelacornis*.

I enclose in the genus *Spelacornis* also the bird described in the *Cat. B. Brit. Mus.* vi. p. 305 under the name of *Pnoepyga caudata*. Unfortunately it has nothing to do with *Pnoepyga*. In *Pnoepyga* the tail consists of six rectrices only, and is not visible at all, as it disappears in the mass of silky soft disintegrated rump-feathers, in addition to other differences. In *Spelacornis*, however, the tail is conspicuous and consists of ten rectrices. It is true that *Spelacornis caudata* has a shorter tail than *trogodytoides*, *halsueti*, and *souliei*, and I am afraid some genus-splitter will before long create a new generic name for it. I, however, do not approve of this, and am satisfied by placing "*caudata*" (a somewhat silly name, which one can only understand when one knows that it was described as a species of *Tesia*) into its right neighbourhood, removing it from *Pnoepyga*, as had already been done by Oates (*Fauna Brit. India, Birds*, i. p. 341), who placed it in the genus *Urocichla*, together with *longicaudata*.

The failure to find that *Urocichla* is merely a synonym of *Spelacornis* is due to the absence of any specimens of either *S. troglodytoides* and *S. halsueti*, or *souliei*, in the British Museum. Probably Sharpe, when creating his *Urocichla*,

relied only on notes made in the Paris Museum, and plates, but had no examples of the species of his restricted *Spelaeornis* before him.

Even now these birds are very rare in collections.

Of *S. troglodytoides* only the type-specimen is traceable in the Paris Museum. Père David mentions having sent two specimens to Verreaux, but only one can be found now. Of *S. halsueti* also only the type in the Paris Museum is known, and so it is with *S. souliei*. These three valuable types have been kindly sent me by the authorities of the Paris Museum, who also gave permission for them to be figured. As both *S. troglodytoides* and *halsueti* are figured in the *Oiseaux de la Chine*, we have on Plate VII. represented *S. souliei*, *oatesi*, and *caudata*, which had hitherto never been figured.

The species of the genus *Spelaeornis* might thus be reviewed :—

- | | | | |
|----|---|--|----------------------------|
| 1. | { | Rectrices uniform | 2. |
| | { | Rectrices barred | 3. |
| 2. | { | Throat bright rufous rust-colour, tail 29—32 mm. | <i>S. caudata</i> . |
| | { | „ white, tail above 45 mm. | <i>S. oatesi</i> . |
| | { | „ brown | 4. |
| | { | Upperside pale grey-brown | <i>S. halsueti</i> . |
| 3. | { | Pileum blackish brown with whitish antecapical bars, throat pale orange-rufous, back rufescent | <i>S. troglodytoides</i> . |
| | { | Pileum dark brown with triangular white spots, throat white, back rufous | <i>S. souliei</i> . |
| 4. | { | Middle of abdomen dark grey | <i>S. reptata</i> . |
| | { | „ „ „ white | <i>S. longicaudata</i> . |

1. *Spelaeornis troglodytoides* Verr.

Spelaeornis troglodytoides Verreaux, *Nouv. Arch. Mus. Paris* vi. *Bull.* p. 34 (1870.—“Montagnes du Thibet Chinois”); Hartert, *Vög. pul. Fauna* i. p. 785.

Figure : David & Oustalet, *Ois. Chine*, pl. 16.

West Setchuan, China. Unique in Paris Museum.

2. *Spelaeornis halsueti* (David).

Psocopygia ? *Halsueti* David, *L'Institut* iii. no. 11, and *Bull. Soc. Philom.* 6 sér. xii. p. 19 (1877.—Tsinling Mts.); Hartert, *Vög. pul. Fauna* i. p. 786.

Figure : David & Oustalet, *Ois. Chine*, pl. 15.

Tsinling Mts. Unique in Paris Museum.

3. *Spelaeornis oatesi* (Rippon).

(Plate VII., fig. 3.)

Uroecchia oatesi Rippon, *Bull. B. O. Club* xiv. p. 83 (1904.—Mt. Victoria, Southern Chin Hills in Burma).

Mt. Victoria, Southern Chin Hills in Burma. Specimens in the British and Tring Museums.

4. *Spelaeornis souliei* Oust.

(Plate VII., fig. 1.)

Spelaeornis Souliei Oustalet, *Bull. Mus. Paris*, 1908, no. 6, p. 257 (Tse-kou, Yunnan).

Tse-kou in Yunnan, W. China. Unique in the Paris Museum.

5. *Spelaeornis longicaudata* (Moore).

Pnoepyga longicaudata Moore, *Proc. Zool. Soc. London* 1851, p. 74 (Khasia Hills, India).
Pnoepyga chorulata Godwin-Austen & Walden, *Ibis* 1875, p. 252 (Manipur Hills).
Urocichla longicaudata Sharpe, *Cat. B. Brit. Mus.* vi. p. 263.

Figure : none.

Khasia and Manipur Hills in India. Specimens in the British, Tring, and other museums.

6. *Spelaeornis reptata* (Bingham).

Urocichla reptata Bingham, *Bull. B. O. Club* xiii. p. 55 (Loi-Pang-Nan, Mekong Valley)

Figure : none.

Loi-Pang-Nan, 8300 feet high, in the Mekong Valley.

7. *Spelaeornis caudata* (Blyth).

(Plate VII., fig. 2.)

Tesia caudata Blyth, *Journ. As. Soc. Bengal* xiv. p. 588 (1845.—Darjiling).
Pnoepyga caudata Sharpe, *Cat. B. Brit. Mus.* vi. p. 305.
Urocichla caudata Oates, *Fauna Brit. India, Birds* i. p. 341.
Spelaeornis caudata Hartert, *Vög. pal. Fauna* i. p. 786.

In high altitudes in the mountains of Sikkim, Himalayas. Specimens in the British, Tring, and other museums.

THE GENUS *SPHENOCICHLA*.

This curious little genus, with a sharply pointed canneiform bill, consists of two species only : *S. humi* Mandelli, which inhabits Sikkim, and *S. roberti* Godwin-Austen & Walden, from the mountains south of the Brahmaputra, in Assam (North Cachar Hills and Manipur).

With regard to the former it is strange that it has not been procured recently. As far as I know, it has only been procured by the late Mandelli's native collectors, a fact from which one would conclude that it lived in the most inaccessible high mountains of native Sikkim. The Tring Museum, however, possesses one of the skins obtained by Mandelli's men, which it received with the Elwes collection, and which is said, on its label, to come from Namtchi, in Sikkim, and was shot in April 1875. The convent of Namtchi is only 5700 feet high, and not very far from Darjiling. Absolutely nothing is known about the habits, nests, eggs, etc., of either of the two *Sphenocichla*. (Cf. Oates, *Fauna B. India, Birds*, i. p. 336; Hartert, *Vög. pal. Fauna*, i. p. 787.)

Sphenocichla roberti has recently been obtained by Dr. H. N. Coltart in the Naga Hills, three days' journey to the S.E. of Margherita, in Upper Assam. He describes the iris as brown, feet dark brown, the upper bill as dark horn-brown, tip and lower mandible paler horn-colour.

Sphenocichla humi is figured on Plate VII., fig. 4.

THE CORRECT NAME OF THE "GREEN BEE-EATER."

The little Green Bee-eater, now known under the name of "*Merops viridis*," marvellously lumped by Dresser, Sharpe, Blanford, and others, and judiciously split by Parrot, Neumann, and others, is, as everybody knows, on the upperside as well

as the underside, uniform green or yellowish green, while some of its subspecies have a blue throat, others not. I was therefore not a little surprised when I read the diagnosis of Linnaeus, who, in the first instance, *Syst. Nat.* ed. x. 1. p. 117 (1758), diagnosed his *Merops viridis* as follows: "*M. dorso ferrugineo, abdomine alisque viridibus, gula candaque caeruleis,*" and stated as its distribution Java and Bengal! Now the little Green Bee-eater has neither a ferruginous back nor a blue tail, and it has never been found in Java! Looking up the quotations given by Linnaeus, we find as the first author Osbeck, who described a Java bird, and it is at once obvious that Linnaeus extracted his diagnosis and the locality Java from Osbeck. Of the other three quotations of Linnaeus one refers also to the Java Bee-eater described by Osbeck; the other two (Albin and Edwards), however, to the little Green Bee-eater of Bengal, though shockingly and wrongly coloured. It does not, of course, alter the status of the name *viridis* if two quotations are erroneously added, as its diagnosis and first "*habitat*" clearly refer to the bird now known as *Merops sumatranus*, which must henceforth and for ever bear the name *Merops viridis* L.

Of course nowadays we begin with the tenth edition of Linnaeus (1758), but in the *Catalogue of Birds*, unfortunately, the twelfth edition alone has—with a few exceptions—been quoted. This might, in the case of the Green Bee-eater, have accounted for the acceptance of the name *viridis* for the latter. But even there (*Syst. Nat.* ed. xii. 1. p. 182 [1766]) we do not find a satisfactory diagnosis. To the quotations we find added: *Merops viridis, supra ferruginea* Amoen acad. 4, p. 237, which is again *M. sumatranus*; Brisson's *Apiaster bengalensis torquatus*, which **is** the little Green Bee-eater; and Brisson's *Apiaster madagascariensis torquatus*, which is the same with a wrong locality! The localities Linnaeus quotes are again Java and Bengal. Now the description of 1766 is clearly a mixture of that of the species hitherto called *M. sumatranus* and *M. viridis*. There is the blue tail of "*sumatranus*" and the black pectoral band of "*viridis*," and therefore even the name "*viridis*" of 1766 could not have been adopted by any one who looked up Osbeck's original description, or duly considered the diagnosis and first locality given by Linnaeus.

The next name available for the "Green Bee-eater" is *Merops lamark*, and the Ceylonese and Bengal form must be called

Merops lamark lamark.

Not beautiful, perhaps, but logical and inevitable!

ON THE EGGS OF THE *PARADISEIDÆ*.

By ERNST HARTERT, Ph.D.

(Plate X.)

EGGS of the "Birds of Paradise" were, until recently, very little known, and poorly represented in collections. At the present moment the Tring Museum possesses, in addition to the most complete and finest collection of skins of the *Paradiseidæ*, also the best collection of their eggs. On Plate X. eggs of the species at present represented at Tring are figured.

The first egg of a real Paradise-bird of the genus *Paradisea* described was that of *Paradisea raggiana* from British New Guinea, described by Mr. E. P. Ramsay in the *Proceedings of the Linnean Society of New South Wales*, vol. viii. 1883, p. 26. To this Dr. A. B. Meyer added a description and rather poor figure of that of *P. apoda* from Ara (*Zeitschr. ges. Orn.* i. 1884, p. 293, pl. xvii. fig. 2), and in 1893 (*Ibis* p. 481, pl. xiii.) that of *Paradisea augustae-victoriæ*.

In the second edition of the catalogue of the eggs in Mr. Ad. Nehrkorn's collection—supposed to be the largest collection of eggs next to that of the British Museum—the eggs of *Ptilorhis alberti*, *Paradisea augustae-victoriæ*, *Phonygammus janesi*, *Manucodia atra*, *Manucodia chalybata orientalis*, and *Lycocorax obiensis* are described.

Mr. Rothschild's collection contains at present eggs of 23 forms of *Paradiseidæ*, the Bower-birds included.

At a glance at the eggs on the plate or in the collection it is apparent that these eggs are of three totally different types:—(1) Uniform cream-colour: most of the "Bower-birds," such as *Acluroedus*, *Scenopoetes*, and *Prionodura*. (2) Scribbled densely all over: the genus *Chlamydera*, also belonging to the "Bower-birds." (3) Spotted, and in most cases longitudinally splashed: all true *Paradisea* and their nearest allies, such as *Paradisea*, *Ptilorhis*, *Seleucides*, *Lophorina*, *Manucodia*, *Phonygammus*, and *Parotia*—the last three not so distinctly splashed longitudinally, but more spotted in the ordinary way.

Of the third category another subdivision might be made: the strikingly longitudinally splashed eggs of *Paradisea*, *Ptilorhis*, *Seleucides*, and *Astrapia*, and one might add *Lophorina*, the spotted and less (if at all) longitudinally marked eggs of *Manucodia*, the eggs of *Phonygammus*, with the character of many *Meliophagidæ* rather strikingly pronounced, and the somewhat singular egg of *Parotia*.

***Ptilonorhynchus violaceus* (Vieill.).**

See: Campbell, *Nests and Eggs Austral. B.* p. 191, pl. ix. (1901); North, *Nests and Eggs* i. p. 36.

The nest is an open shallow structure made of twigs and lined with leaves. The two or three eggs are of a dark cream to dirty yellow brownish colour, spotted with cinnamon-brown and underlying purplish grey spots.

We have received from Mr. H. Munt one of the eggs from Mr. G. Cape's collection. With the exception of the two in Mr. Munt's possession, this is probably the only egg of the Satin Bower-bird in this country. Our specimen measures 34.7×28.4 mm.

Aeluroedus viridis (Lath.).

Campbell, *l.c.* p. 196; North, *l.c.* p. 70.

Nest an open, somewhat deep structure of twigs and leaves, lined with fine twigs and rootlets. The two or three eggs are of a uniform rich cream-colour.

Aeluroedus maculosus Rams. (Pl. X., fig. 19).

Campbell, *l.c.* p. 195; North, *l.c.* p. 73.

Nest a bowl-shaped structure, composed of twigs and leaves, and lined with fine twigs, leaves, etc. The eggs are two or three, according to North sometimes even four. They are of an oval to elongate-oval shape, smooth, and slightly glossy, their colour being a light cream to brownish cream-colour.

The Tring Museum has an egg, together with nest and parent bird, brought from Cairns by Mr. Robinson. The egg measures 38.5×28 mm.

We also have a clutch of two taken by Mr. A. S. Meek in North Queensland. These eggs measure 42.6×23 and 41×27.8 mm.

A very fine photograph of the nest with two eggs of this species is given on Plate XXIV. of Vol. VIII. of the *Emu*.

Aeluroedus buccoides geislerorum Meyer (Pl. X., fig. 14).

Nehrkorn, *Kat. Eiersamml.* 2. Aufl. p. 337 (1910).

We have received from Professor Förster, of Bretten, two eggs collected by the late Carl Wahnes on the Sattelberg, in German New Guinea. They are of a rich cream-colour, nearest to "cream-buff" in Ridgway's *Nomencl. Col.* pl. v. fig. 11. They measure 41.3×26.5 and 45×29 mm., this being rather large for the bird.

Nehrkorn (*l.c.*) describes an egg from the same source as ours as "pea-yellow," and measuring 40×26 mm.

Scenopoeetes dentiostriis (Rams.) (Pl. X., fig. 18).

North, *Victorian Naturalist* xxv, No. 10. pp. 165-8. pl. 8 (1909).

North (*Nests and Eggs B. Austr. and Tasmania* i. p. 69) gave descriptions of the playgrounds of this peculiar species, and, in 1909, described for the first time the nests and eggs, which had been discovered by Mr. G. Sharp. Immediately afterwards Mr. Sidney Wm. Jackson found a number of clutches, and described them and published excellent photographs in the *Emu*, vol. viii. pls. xxxii. and xxxiv., 1909.

The Tring Museum has received an egg from Mr. Gregory M. Mathews, from the collection of Mr. H. L. White, an enthusiastic egg-collector, who directed Mr. Jackson to the jungles of North Queensland—so inappropriately called "scrub" by the Australians—in order to collect these and other rare eggs.

The egg in the Tring Museum is the second laying of a female of *Sc. dentiostriis*, which, according to the label, usually consists of one egg, while the first one contains as a rule two eggs. Our egg was taken on November 30, 1909, by Mr. E. D. Frizelle, a native who accompanied Mr. Jackson on his expedition. The nest was placed in a vine-covered tree near Talga on the bank of the Barron River, not far from Atherton in North Queensland.

The egg is of a real cream-colour, and moderately glossy. The surface of

the shell appears to be slightly smoother than in eggs of *Aeluroedus maculosus*. The colour, however, is not at all darker, but lighter than that of our examples of *Ae. maculosus*. The egg measures 43.5×18.05 mm.

***Chlamydera cerviniventris* Gould (Pl. X., fig. 17).**

Campbell, p. 206 ; North, p. 58, plate B. ii. fig. 8.

Nest open, cup-shaped, consisting of twigs, dry plant-stalks, and strips of dry bark.

The eggs are slightly glossy, and have a whitish, pale greenish white, or pale greenish olive ground-colour, covered with a labyrinth of thread-like lines and scribbles. The egg in the Tring Museum was taken at Cape York, North Queensland, on November 15, 1901, by Mr. Bertie L. Jardine. It measures 40.6×27.9 mm.

Dr. A. B. Meyer (*Abh. k. zool. Mus. Dresden*, vol. v. No. 10. p. 2, 1895) received an egg of a *Chlamydera* from German New Guinea, on which he founded an imaginary new species—“*C. recondita*.” As *C. cerviniventris* became soon afterwards known from that country, he considered the egg to belong to that species, and that is probably correct, but as the eggs of the various species of *Chlamydera* are very much alike, not absolutely certain.

***Chlamydera maculata* (Gould).**

Campbell, p. 198, pl. 9 ; North, p. 41, pl. B. ii. figs. 4, 5, 6.

The fullest description of the remarkable “bowers” of these birds, and of their nests and eggs, is given by North, *l.c.* The eggs resemble those of the other species of the genus.

The Tring Museum does not yet possess eggs of the Spotted Bower-bird.

***Chlamydera nuchalis nuchalis* (Jard. & Selby) (Pl. X., figs. 15, 16).**

Campbell, p. 203 ; North, p. 51, pl. B. ii. fig. 3.

A full description of the bowers and nests and eggs of this species is given by Mr. North.

We have received from our friend Mr. G. M. Mathews six eggs, taken in January 1907 by Mr. C. E. May at Point Keates, Northern Territory, Australia. They vary very much : the ground-colour is pale olive-green, pale olive, cream, or creamy white ; the markings consist of a labyrinth of thread-like lines of deep brown colour (fig. 16), with underlying greyish patches, or of olive-brown lines, in others more of spots and dots than of lines.

***Chlamydera nuchalis orientalis* Gould.**

Campbell, p. 204 ; North, p. 55, pl. B. ii. figs. 9-12.

Nest and eggs do not seem to differ from those of *Chlamydera nuchalis nuchalis*.

***Chlamydera guttata* Gould.**

North, *Victorian Naturalist* xvi. p. 10, 1899 ; Campbell, p. 1078 ; North, *Nests and Eggs*, p. 48, pl. B. ii. fig. 7.

Nests and eggs do not differ essentially from those of other species of *Chlamydera*.

Amblyornis inornatus (Schl.).

Nehr Korn, *Kat. Eiersamml.* 2. Aufl. p. 356.

Nehr Korn describes an egg from "British New Guinea" as uniform yellowish white, and measuring 40×29 mm. Unfortunately, as usual, no collector's name or authority is stated, so that this information will require confirmation.

Sericulus chrysocephalus Lewin.

Campbell, p. 208, also plate; North, p. 60.

The nest is rather flat, small for the bird, and consists of dry branches and twigs, lined with finer twigs and wire-like stems. Eggs like eggs of the genus *Chlamydera*.

Prionodura newtoniana de Vis (Pl. X., fig. 21).

North, *Victorian Naturalist* xxv. (1909). pp. 162-5. pl. 7; Jackson, *Emu* viii. (1909). pl. xxviii.

The nest photographed in the *Emu* is a shallow cup of dry twigs, outside ornamented with leaves. Eggs light cream-colour. We have received, through Mr. Mathews, an egg taken on November 30, 1908, by Mr. George Sharp, on the Bellenden Ker Range, North Queensland. The nest was placed in the hollow of a tree growing in dense scrub. The single egg was already incubated. It measures 34.5×24.7 mm.

[Cnemophilus macgregori de Vis.

A nest and egg said to belong to this bird were received in 1898 from Mr. A. S. Anthony. They were described by Mr. Rothschild in the *Bull. B. O. Club*, vol. viii. p. xxvi. The egg, however, is so utterly unlike any eggs of *Paradisæidæ* hitherto known, exactly looking like an Oriole's egg, and the thick, soft nest of moss differs so much from all nests of *Paradisæidæ* which we know, that we do not now believe this nest and egg are correctly identified.]

Parotia sexpennis lawesi Rams. (Pl. X., fig. 20).

Mr. A. S. Anthony sent us the nest and egg of this species, found in the Owen Stanley Mountains, about 6000 feet high. The nest is built entirely of the wire-like stems of some climbing plant, and lined only with finer stalks of the same kind and some fine rootlets. Unless pressed out of shape the structure is very flat. The single egg is of a vinaceous red, with dark rufous, sometimes almost black patches and spots, and a few underlying greyish spots. Measurements: 33×24 mm.

Very amusing is the vernacular name of this form among the feather-hunters and collectors in New Guinea. The bird became known by its specific title; but the Latin "*sexpennis*" having no meaning for a Papuan native, half-caste, and probably most of the white colonists out there as well, it became "sixpenny," or as Anthony spells it "sixpenney," a word which apparently has a great meaning for natives.

Lophorina superba minor Rams. (Pl. X., figs. 22, 23).

Nest and eggs were taken by A. S. Anthony, 5000 feet high in the Owen Stanley Mountains. The nest consists of dry and partially decayed leaves, dry twigs and rootlets. The two eggs sent differ from each other. The one is brownish buff, longitudinally splashed and marked with pale brownish grey, and

some, apparently deeper lying, pale brown markings. This egg measures 32×22.4 mm. The other one is more cream-colour, with rufous spots and longitudinal markings, and underlying pale bluish grey longitudinal splashes and spots, as well as with some brown points and dots. It measures 31.8×20.6 mm. The eggs are very little glossy and show rather deep pores.

***Ptilorhis magnifica intercedens* Sharpe (Pl. X., fig. 9).**

From the late C. Wahnes we have received a nest and eggs from the Sattelberg in German New Guinea. The nest is built of thin wire-like fibres, outside surrounded by large dry leaves, and forms a deep round cup. The two eggs cream-colour longitudinally marked with brown and pale grey. They measure 34.4×23.6 and 33.3×23.2 mm.

***Ptilorhis magnifica alberti* Ell.**

Campbell, p. 76; North, p. 29.

Nest and eggs are well described by Campbell, North, and others. The first discoverer was Mr. Harry Barnard.

***Ptilorhis victoriae* Gould (Pl. X., fig. 5).**

Campbell, p. 69; North, p. 26.

The eggs of this species (or perhaps better subspecies of *P. paradisea*, in spite of the striking differences between the females) are among the most beautiful eggs. We received a pair from Mr. Albert S. Meek, from Northern Queensland, one of which is figured (fig. 5). These two eggs measure 33×23.2 and 34.8×22.9 mm.

***Ptilorhis paradisea* Sw.**

Campbell, p. 66; North, p. 23.

The nests often contain cast snake-skins. The eggs agree in general character with those of their allies, and especially with those of *P. victorice*.

***Selencides ignotus* (Forst.) (Pl. X., fig. 2).**

W. Rothschild, *Bull. B. O. Club* viii. pp. xiii, xiv.

Nest and egg had been found in the Pandanus swamps on the Vanapa River, in British New Guinea, and were described at the 56th meeting of the B.O.C. on November 16, 1898. The single egg measures 39.2×22 mm.

melano striatus
meyeris ***Astrapia-stephanie* (Finsch & Meyer) (Pl. X., fig. 8).**

A single egg was taken by A. S. Anthony in the Owen Stanley Mountains, about 8000 feet high. It is smooth, glossy, light brown, with deep brown longitudinal dashes from the thick end downwards, a few spots on the thick end, and paler brownish red spots. It measures 36.5×25.4 mm.

***Paradisea apoda* L.**

An egg from the Arn Islands, of this species, was for the first time described and figured by Dr. A. B. Meyer in Madarász's *Zeitschr. f. ges. Orn.* i. p. 293. pl. xvii. fig. 2.

Paradisea raggiana Sel. (Pl. x., fig. 3).

Ramsay, *Proc. Linn. Soc. N. S. Wales* viii, p. 26 (1883).—This is the first description of an egg of a true *Paradisea*.

Nest and eggs were received from A. S. Anthony, who collected them at an elevation of 2000 feet in the Owen Stanley Mountains. The nest is like that of other species of *Paradisea*. The eggs are of a beautiful pinkish cream-colour, the markings of a very clear reddish brown with a few underlying violet-grey streaks. Measurements: 38.2×24.3 and 37.5×25.7 mm.

Paradisea rudolphi (Finsch) (Pl. X., fig. 4).

An egg was taken at an elevation of 5000 feet by A. S. Anthony. It is very elongated, and resembles the specimens of the egg of *P. raggiana* except that the ground-colour is not so pink, more of a rich cream-colour. It measures 38.5×24 mm.

Paradisea minor minor Shaw (Pl. X., fig. 6).

Nest and eggs were taken by A. E. Pratt at Hambitawuria in Western Dutch New Guinea, at an elevation of 1500 feet. The well-preserved nest is built of rufous brown twigs, inside of fine black wire-like fibres or rootlets, and the outside is partially covered with dead leaves. The cup measures about 12—13 cm. across, and is 8 cm. deep. The egg is cream-colour, and marked with the characteristically paradiseine long streaks of brown and rufous brown, from the thick end downwards, and shorter deeper lying grey ones. It measures 35.2×20.8 mm.

We also received from the late Heinrich Kühn the remains of a typical Paradise-bird's nest and an egg from Etna Bay, Dutch New Guinea. The egg is paler and more frequently marked than the one taken by A. E. Pratt, but it agrees entirely with an egg of *Paradisea minor finschi* in the Tring Museum. It measures 36.1×26.4 mm. There can, in my opinion, be no doubt that it is the egg of *P. minor minor*, which were common and in full breeding plumage during the visit of Heinrich Kühn to Etna Bay.

Paradisea minor finschi A. B. Meyer (Pl. X., fig. 7).

Two eggs were collected by the late Carl Wahnes in Kaiser Wilhelm's Land. They are moderately glossy, of a rich cream-colour, and heavily marked with longitudinal patches of brown, and a few purplish grey ones. Measurements: 36×26 and 35×26 mm.

The nest consists of twigs and dry leaves, and is lined with fine wire-like fibres.

Paradisea augustae victoriae Cab. (Pl. X., fig. 1).

A. B. Meyer, *Ibis* 1903, p. 481, pl. xiii.; Nehr Korn, *Kat. Eiersamml.* 2. Aufl. p. 356 (1910).

Two eggs collected by the late Carl Wahnes on the Sattelberg in German New Guinea are of a rich pinkish cream-colour, with long rufous brown and deeper lying reddish grey stripes. They measure 35×24.6 and 34.5×24.6 mm. They agree very well with the eggs figured in the *Ibis*, except that, if the figures are quite exactly coloured, in our eggs the markings are not quite so reddish.

The nest is exactly like that of *P. minor finschi*.

Manucodia atra altera R. & H. (Pl. X., fig. 12).

Cf. *Nor. Zool.* 1903, p. 84.

An egg was taken by Heinrich Kühn on the Arn Islands. It is, like other eggs of this genus, not quite so smooth, but somewhat more rough than eggs of *Paradisca*. The ground-colour is white, with black-brown spots and patches and deeper lying ones of a bluish grey colour, and a few faint scribbles are also visible. Measurements: 41×27.5 mm.

Manucodia atra atra (Less.).

Nehrkorn, *Kat. Eiersamml.* 2. Aufl. p. 356 (1910.—Subnomine *M. atra*).

An egg collected by Wahnies in Kaiser Wilhelm's Land is somewhat abnormally pyriform, not so white as that from Arn, but cream-colour, and the brown spots are heavier, otherwise it agrees with that of *M. atra altera*. Measurements: 41.4×27 mm.

The ground-colour of the eggs described by Nehrkorn from "South-west New Guinea" varies from "white to greyish yellow."

Manucodia chalybata orientalis Salvad. (Pl. X., fig. 13).

Nehrkorn, *Kat. Eiersamml.* 2. Aufl. p. 356 (1910).

We have received three eggs collected by the late Carl Wahnies in German New Guinea. They are white to creamy white, rather roundish, with brown and purplish grey markings. They measure 35.1×26.7 , 35×27 , and 36.7×26.7 mm.

Several nests which we have examined are hanging on a fork of a branch, like Orioles' nests; they consist of brown wiry stalks, intermingled with leaves, and are lined with finer stalks and fibres.

Manucodia comrii Sel. (Pl. X., fig. 11).

Rev. Austr. Mus. ii. p. 32 (1893).—Rothschild & Hartert, *Nor. Zool.* 1896, p. 234.

Mr. A. S. Meek found the nest and eggs on Trobriand Island. The nest—hanging in the fork of a branch—and the eggs, measuring 29×43 and 30.5×45.5 mm., were described by us in 1896.

It is to be noted that all eggs of the genus *Manucodia* agree in general character, and show very little or none of the long patches and dashes so characteristic for eggs of *Paradisca*, *Ptilorhis*, *Seleucides*, and *Astrapia*.

Phonygammus jamesi Sharpe (Pl. X., fig. 10).

Nehrkorn, *Kat. Eiersamml.* 2. Aufl. p. 356 (1910).

The lining of a nest, which appears to have been constructed like that of other *Paradisceidae*, and two eggs have been received from A. S. Anthony, taken at a height of 6000 feet in the Owen Stanley Mountains. Pale pink, spotted all over with brownish red surface-patches and violet-grey. Measurements: 35.5×24 and 35.3×23.8 mm. Shaped like typical eggs of *Garrulus glandarius*.

Phonygammus gouldi (Gray).

Campbell, p. 78, pl. 6; North, p. 32, pl. B. iii. fig. 6.

Eggs of this Australian form, judging from figures and descriptions, agree perfectly with those of *P. jamesi*.

Lycocorax obiensis Bernst.

Nehr Korn, *Kat. Eiersamml.* 2. Aufl. p. 356 (1910).

Nehr Korn describes an egg from Obi as pink with a labyrinth of black hair-lines, as they are frequently seen in eggs of *Emberiza citrinella*, and gives the measurements as 41×29 mm.

It will be seen from the above that we are fairly well acquainted with the eggs of the genera *Ptilonorhynchus*, *Aeluroedus*, *Scenopoeetes*, *Chlamydera*, *Syricalus*, *Prionodura*, *Ptilorhis*, *Selenides*, *Paradisea*, *Munucodia*, and *Phonygammus*, and that some few others are also known from single eggs or clutches (*Lycocorax*, *Astrapia*, *Lophorina*, *Parotia*, *Amblyornis*). On the other hand, we know nothing about the eggs of the genera *Xanthomelas*, *Loboparadisea*, *Cnemophilus*, *Loria*, *Paradigalla*, *Margregoria*, *Loborhamphus*, *Pteridophora*, *Lamprothorax*, *Anthothorax*, *Fulcinellus*, *Schlegelia*, *Diphyllodes*, *Cicinnurus*, *Semioptera*, and *Drepanornis*. With regard to *Drepanornis* it must be said that Mr. Rothschild, *Bull. B.O. Club* xxi. p. 36, mentioned that he possessed two broken eggs of *Drepanornis*; but we have come to doubt that they are correctly identified, as they are utterly unlike each other, and there is no evidence to prove their correctness. We have therefore thought it best to refrain from giving a description.

A wide and interesting field is still open in New Guinea and the Papuan Islands generally for the discovery of unknown eggs of *Paradiseidae*. It is especially astonishing that the eggs of *Cicinnurus*, which is a common bird in many places, are still unknown.

ON SOME NECESSARY ALTERATIONS IN THE NOMENCLATURE OF BIRDS.

By GREGORY M. MATHEWS.

SINCE the publication of my *Handlist*, less than three years ago, I have noted many alterations in the nomenclature there accepted. As stated in the preface, I followed the *Handlist of Birds in the British Museum*, which was then nearing completion. That work, however, regarded the XIIth Edition of Linné's *Systema Naturae* as the commencing point of binomial nomenclature, whereas it is now generally accepted that the year 1758 and the Xth Edition of Linné's *Systema Naturae* shall mark that inauguration. It seems only a matter of time before British ornithologists fall in line with the rest of the scientific world, and I have therefore resolved to conform to the laws formulated by the International Zoological Congresses, and recognize 1758 as the starting-point.

Recognition of the laws proposed in the International Code on Zoological Nomenclature prohibits the adoption of names introduced in works in which the principles of binomial nomenclature are not applied. The law on this matter, otherwise strictly enforced, has been contravened with regard to the "Brissonian genera." Brisson was a non-binomial writer, yet many of the generic names met with in his work have been utilized as if correctly introduced. I cannot accept any, and the provision of substitutes has sometimes been a difficult task. I have constantly referred to C. Davies Sherborn's admirable work, the *Index Animalium*, and have continually had to regret the admission of the "Brissonian genera" into that most valuable compilation. If they had been omitted or even recognized as of only historical interest my task would have indeed been much lighter. As it is I can only state that the accuracy of Mr. Sherborn's work is most remarkable. Only those who have been engaged in nomenclatorial research can gauge the tremendous amount of work that has been expended in the production of such a publication. In proposing the names to be adopted in place of the ones at present illegally in vogue "ex Brisson" I cannot claim that all such introductions are final, and only offer them and invite criticism so that by co-operation finality may be earlier attained. In order that this purpose may be soon achieved I am attaching a list of names which seem to need alteration, having no connection with Australian ornithology, but which have cropped up whilst I was endeavouring to ascertain the correct names of Australian birds for my *Handlist*. By this action I hope to interest my American and Continental friends whose writings I have freely made use of and whose studies of nomenclatorial problems largely exceed my own.

I have not made up these lists with the intention of "upsetting" any names, but with the idea that only strict adherence to the laws will institute stability, and my motto coincides with that of the American Ornithologists' Union, "Zoological Nomenclature is a means, not an end, of Zoological Science." I perhaps differ from that body in some of my methods, but plead that the laws should be observed even when they clash with "general consent" for the time being. I have been much impressed with the total inadequacy of this as a reason for the retention of any name during the course of my investigations, names chosen by that method

varying with each generation, obviously incorrect names gaining influence at times through the action of a master-hand accepting them. This was observed so often that I have every confidence that the names here proposed, where accurate, would very soon displace the incorrect ones, now in use, were action to take place at once and only the correct names be used.

In order that no misunderstanding may arise, my general rules have been as follows :—

Non-binomial authors have been ignored.

Nude names have been rejected.

The law of priority has been rigidly observed.

It might be considered superfluous to make the above statements, but I have found so much inconsistency, even among authors professing to accept the above, that I have felt compelled to make myself clear on this score. What constitutes a nude generic name seems a moot point. Names unaccompanied by citation of known species and diagnosis have been ignored. In the *Amer. O. U. Check List*, 3rd Ed. 1910, what may be known as "Oken's names" (Allen, *Bull. Amer. Mus. Nat. Hist.* vol. xxiv. 1908. p. 26, note) have been accepted. The matter is too intricate to discuss here, but I certainly refuse to recognize them. I only received the latest edition of the *Check List* when the majority of these notes were drawn up, but have taken advantage of most of the alterations there authorized that relate to the birds which fall under my care.

The following alterations are necessary, the pages and numbers referring to my *Handlist of the Birds of Australia* (1908):—

Page 5: Genus II. *Casuarius* Latham, *Index Ornith.* ii. p. 664 (1790)—type
C. casuarius

vice *Casuarus* Brisson.

Casuarus johnsoni F. Mueller replaces *C. australis* Wall (not Shaw),
if the rule "Once a synonym always a synonym" is enforced.

„ 6: Genus III. *Megapodius* Temminck, *Planches Col.* pl. 220, August 1823
vice *Megapodius* Quoy et Gaimard.

, 12: Genus XXX. *Euryzona* Bonaparte, *Compt. Rend.* xliii. p. 599 (1856)—
type *Rallus fasciatus* Raffles
replaces *Rallina* anct. (not *Rallina* Reichenbach).

Reichenbach in *Arum Syst. Nat.* pl. xx. 1849 figures the head, foot, and wing of a new genus *Rallina*. In *Nor. Synopsis Arum*, No. 5, July 1851, he named 2577 *Rallina concolor* (*Rallus*—Gosse, *B. of Jam.*); 2471–2 *Rallina immaculata* (*Porzana*—Gould, *Austr.* vi. pl. 82); 2477 *Rallina plumbea* (*Rallus*—us Vieill. *nigricans* Vieill.).

In 1852 the text to the plates of the *Arum Syst. Nat.* was published, and on p. xxiii was named *Rallina* Reichenbach *maxima* (*Rall*—us Vieill.) R. as the typical species of the genus, and references were included covering the previous entrances of the genus-name.

If we accept *maxima* as the type of *Rallina*, then Reichenbach's name falls as an absolute synonym of *Aramides* Pucheran, *Revue Zool.* p. 277 (1845)—type *A. cayana*.

If *concolor* be considered as the type, then *Rallina* will displace *Amaurolimnas* Sharpe (*Bull. Orn. Club* No. 5. p. xxviii, 1893), introduced for that species alone.

To replace *Rallina* of the *Cat. Birds* xxiii. p. 74 there appears to be only one claimant, *Euryzona* Bonaparte (*Comptes Rendus* xliii. p. 599, 1856), who introduced it as of Reichenbach, with *fasciata* Raffles as first species and named as type in the *Cat. Birds*, *loc. cit.*

Page 13: Genus XXXVII. *Gallinula* Tunstall, *Ornith. Brit.* p. 3 (1771)

vice *Gallinula* Brisson.

„ „ Genus XXXVIII. *Porphyrio* Bonnaterre, *Tabl. Encyc. Method. Orn.* p. xciv (1790)

vice *Porphyrio* Brisson.

„ 14: Genus XLI. *Podiceps* Latham, *Suppl. Gen. Syn.* i. p. 294 (1787)

not *Podicipes* Lath. (emend.).

British authors generally have used *Podiceps* for the Grebes, and just as consistently has it been rejected by American writers. The reasons given by the latter can be best understood by a quotation from a very recent paper on this subject. Allen (*Bull. Amer. Mus. Nat. Hist.* vol. xxiii. p. 289, 1907) stated: "Certain naturalists, more especially the English, have, however, persistently employed *Colymbus* for the Loons and other names for the Grebes, clearly without good reason, possibly following Latham, who, in 1787, proposed *Podiceps* for the Grebes, and adopted *Colymbus* (Latham nec Linn.) for the Loons"; on p. 290 he added: "Latham's 'Genus LXXIX. *Podiceps* (*Colymbus* Linn.)' is a substitute name for *Colymbus* Linnaeus, and consists of what was left of that group after the Loons were removed from it by Brisson. It is therefore an exact synonym of the restricted genus *Colymbus* Brisson of the *Check List*. From the modern point of view, Latham had no right to reintroduce, on a later page, the name *Colymbus* (Genus LXXXVI. *Colymbus* Latham) as a new genus for the Loons, after making it a synonym of his own genus *Podiceps*, to say nothing of Brisson's having separated the Loons from the Grebes as a distinct genus in 1760, or twenty-seven years before. According to modern usage in other similar cases, *Podiceps* has no standing, being a pure synonym of an earlier genus."

Upon referring to Latham's work I find that the preceding is obviously a misinterpretation of Latham's action.

In the Xth Ed. of the *Systema Naturae* (p. 135) Linné included four species under his genus *Colymbus* (Brisson **independently** introduced *Colymbus* for the Grebes: he never subdivided a Linnean genus; he used the same names as Linné, often with different significations, as for instance *Mergus*, which he used for the Divers though Linné had utilized it for the Mergansers). Linné in his XIIth Edition of the *Systema Naturae* increased the number of species under *Colymbus* to eleven.

Latham was the first writer to subdivide this genus, and his method was perfectly legitimate, and moreover quite intelligible. He noted fifteen species, but separated the Linnean genus into three, accepting *Uria* for the Guillemots, restricting *Colymbus* to the Divers, and introducing *Podiceps* for the Grebes. As he worked with the Linnean system he indicated in brackets the Linnean genus in the few instances where he made improvements. This is clearly seen as, when including *Syleia* (p. 287), *Perdix* (p. 290), *Numenius* (p. 291), and *Phalaropus* (p. 294), he noted against each the Linnean equivalents, *Motacilla*, *Tetrao*, *Scolopax*, and *Tringa* respectively. But such can by no means be called substitute names, as in each case Latham retained the Linnean names for a restricted portion

of the Linnean genus. There can be no appeal whatever from Latham's action, and consequently *Podiceps* must be used for the Grebes. Latham's division was endorsed by such non-English ornithologists as Retzius (1800), Bechstein (1803), Meisner (1804), Koch (1816), Vieillot (1816), Cuvier (1817), Temminck (1820), Lesson (1828), and Kaup (1829), to mention only the first names that come to hand.

In 1829 Kaup (*Skizz. Entw.-Gesch. Nat. Syst.*) introduced new generic names as follows: on p. 35 he retained *Podiceps* for the *P. minor* group; on p. 41 he proposed *Dytes* for *P. cornutus* and *arcticus*; on p. 44 *Pedetaithya* for *P. sub-cristatus*; on p. 49 *Proctopus* for *P. auritus*; and p. 72 *Lophaithya* for *P. cristatus*. Here again, though the names cannot be accepted with full generic rank, the method of restriction being correctly employed no subsequent alterations can be admitted that would depreciate Kaup's division. Hence *Podiceps* must be used for the Dabchicks and *Dytes* for the Grebes, the later introduced names being of only subgeneric value.

Page 14: Genus XLII. *Dytes* Kaup, *Skizz. Entw.-Gesch. Nat. Syst.* p. 41 (1829)
replaces *Lophaithya* Kaup, *loc. cit.* p. 72.

„ 15: Genus XLV. *Penguinus* Brünnich, *Zool. Fund* p. 78 (1772)—type
Phaëthon demersus Linné
replaces *Catarractes* Brisson.

Penguinus Brünnich.

The consideration of this genus involves a review of the generic names proposed for Penguins between 1758 and 1840. In the *Systema Naturae*, Xth Ed. 1758, two species of Penguin were included by Linné, and, curiously, the same specific designation was given to each, as they were allotted to different genera, one being called *Diomedea demersa* (p. 132), the other *Phaëthon demersus* (p. 135). In *Zool. Fund.* p. 78, 1772, Brünnich introduced for these two Linnean species two genera, *Penguinus* and *Spheniscus*: though diagnoses are fully given no species are cited; but the names are easily referable, the former agreeing with Linné's *Phaëthon demersus*, the latter covering the *Diomedea demersa* Linné.

In 1777 Scopoli, in the *Intro. Hist. Nat.* p. 472, revived Brisson's *Catarractes*, correctly citing Linné's *Phaëthon demersus* as example. Thus *Catarractes* Scopoli must fall as an absolute synonym of *Penguinus* Brünnich. Scopoli then mentioned *Diomedea*, and quoted as example *Diomedea demersa* L. and as synonym *Penguinus* Brünnich. The diagnosis there given and the facts do not agree with these attachments. Scopoli further includes *Spheniscus* Brünnich, but does not give any species, as was natural since he had disposed otherwise of the bird Brünnich indicated. Scopoli gives accurately the essential feature of Brünnich's genus.

In 1778 some plates of birds were drawn by or for J. F. Miller, and two Penguins are included, but whether these were published at that date is quite uncertain. They may therefore be neglected. I note them as publication* would possibly change the authorship of the genus *Aptenodytes* from Forster 1781 to Miller 1778. No other harm would be done.

In 1781 the Penguins were exhaustively dealt with by Forster in the *Comment. Götting.* iii. pp. 124 *et seq.*, when nine species were enumerated. Though previously

* (Boddaert in 1783 quotes some of Miller's plates.)

two genera had been in use for only two species, Forster includes all his nine species under one generic name, and that a new one, *Aptenodytes*. The first species was separated from the remaining eight, and therefore might be assumed to be either typical or atypical; but, as showing how artificial the separation was, it is now accepted that this first species is identical with one of the other eight.

In 1786 Scopoli, in the *Del. Flor. et Faun. Insab.* vol. ii. p. 91, recorded some Penguins, and, after the fashion of those times, introduced a new generic name, *Apterodita*, and also altered the specific names.

Gmelin in the XIIth Edition of the *Systema Naturae*, 1788, accepted Forster's generic name, which he also spelt *Aptenodytu* on the same page (p. 555). Forster in the *Enchiridion* p. 38, 1788, included *Aptenodytes*. Latham in the *Index Ornith.* ii. p. 878, 1790, utilized Forster's name, whilst Bonnaterre in the *Tabl. Enc. Method. Ornith.* p. lxxxiv and p. 66, 1791, spelt it *Aptenodita* and *Aptenodyta*.

In 1793 Shaw (*Lecceian Museum* p. 144. pl. 35) figured Forster's *A. patagonica* as the type of a new genus, *Pinguinaria*.

In 1796 Miller's plates were published "with Descriptions by George Shaw," and though the plates (xxiii, xxxiv, xl, xlix) are lettered as *Aptenodytes* species, the text (pp. 45, 67, 78, and 92) calls them *Pinguinaria* species.

From the preceding it will be seen that no one attempted to classify the Penguins or to subdivide Forster's genus, but simply to replace older names with their own.

Lacépède in 1799 (*Tabl. Oiseaux*, p. 14) had only recognized *Aptenodytes*, as did Illiger (*Prodromus* p. 285) in 1811. The first author I have discovered to subdivide *Aptenodytes* is Vieillot (*Analyse* p. 67, 1816), who indicated a new genus, *Endyptes*, covering two sections, typified by Manchot des Hottentots (= *D. demersa* Linné) and Sautenr, Buffon.

Aptenodytes restricted he exemplified by *Apt. papua* Gm. Lath. *Endyptes* is shown to be a misprint on p. 70 for *Eudyptes*.

Should not *A. papua* be recognized as the type of *Aptenodytes*? I do not see how any other species can be chosen.

In 1817 Cuvier (*Règne Animal* vol. i. p. 512, 1817) divided *Aptenodytes* into three, restricting *Aptenodytes* to species like *patagonica* Gm., and reviving *Catarrhactes* (ex Brisson) for *chrysocoma* Gm. and *Spheniscus* (ex Brisson) for *demersa* Gm. Therefore *Catarrhactes* Cuv. equals *Pinguinus* Brünn., and *Spheniscus* Cuv. is the same as *Spheniscus* Brünn.

In 1820 Temminck (*Man. Ornith.* vol. i. pp. cxii, cxiii, 1820) retained *Aptenodytes* for the *patagonica* group and *Spheniscus* (ex Brisson) for *D. demersa* Linné, classing therewith *A. minor* Forster.

In 1826 Stephens (Shaw's *Gen. Zool.* vol. xiii. pt. 1. pp. 54 *et seq.*) introduces a further complication, by restricting *Aptenodytes* to the *patagonica* species and utilizing *Spheniscus* for the *D. demersa* group, and then proposing a new genus, *Chrysocoma*, for the unallotted species. As his first species of this latter group is *chrysorome* Forster, by tautonymy it is accepted as type, and hence *Chrysocoma* becomes an absolute synonym of *Pinguinus*.

Lesson, *Manuel d'Ornith.* ii. p. 366 (1828), accepted Cuvier's divisions, designating *Aptenodytes demersa* Gm. as type of *Spheniscus* Brisson, Cuvier; and *A. patagonica* Gm. as type of *Aptenodytes* Forster.

In 1832 Wagler (*Isis* p. 281, 1832) created another new genus, *Pygoscelis*, for the species *Aptenodytes papua* Forster.

This fairly reviews the state of affairs at 1840, when Gray (*List Gen. Birds* p. 77) typified the various genera previously proposed. Omitting all reference to *Penguinus* Brünnich, *Apterodita* Scopoli, or *Chrysocoma* Stephens, he accepted four genera as follows :—

<i>Spheniscus</i> Briss.	Type <i>S. demersus</i> (L.) Temm.
<i>Eudyptes</i> Vieill.	„ <i>E. chrysocome</i> (Forster) Vieill.
<i>Pygoscelis</i> Wagl.	„ <i>P. papua</i> (Forster) Wagl.
<i>Aptenodytes</i> Forster.	„ <i>A. patachonica</i> (Forster).

If this action be allowed to overrule Vieillot's disposition, which seems to be a matter for more consideration, we arrive at the following :—

Penguinus Brünnich, 1772. Type *Ph. demersus* Linné.

The synonymy includes *Catarractes* Scopoli, 1777 ; *Eudyptes* Vieill., 1816 ; *Chrysocoma* Stephens, 1826.

Spheniscus Brünnich, 1772. Type *D. demersa* Linné.

This is *Spheniscus* of Brisson and most recent authors.

Aptenodytes Forster, 1781. Type *A. patachonica* Forster.

As synonyms may be noted *Apterodita* Scopoli, 1786 ; *Pinguinaria* Shaw, 1793.

Pygoscelis Wagler, 1832. Type *A. papua* Forster.

This arrangement only necessitates the introduction of *Penguinus* Brünnich vice *Catarractes* Brisson into the nomenclature as at present generally accepted. Recognition of Vieillot's separation will incur many other changes, and, if necessary, these must be made at once.

Page 16 : Genus LI, *Puffinus* Cuvier, *Règne Animal* p. 516. vol. I. (1817)

vice *Puffinus* Brisson.

„ 17 : Genus LV. *Procellaria* Linné, *Systema Naturæ* Xth Ed. p. 131 (1758)—
type, by designation of Gray, 1840, p. 78, *P. aequinoctialis* L.
replaces *Majaqueus* Reichenbach, 1852.

„ 19 : Species 114. *Diomedea chrysostoma* Forster, *Mem. Math. Phys. pres.*
l'Acad. Roy. Sci. (Paris) vol. x. p. 571. pl. xiv (1785)
replaces *D. culminata* Gould (the genus *Thalassogeron* cannot stand).

„ „ Species 117. *Phoebetria palpebrata* Forst., *Mem. Math. Phys. pres.*
l'Acad. Roy. Sci. (Paris) vol. x. p. 571. pl. xv (1785)
replaces *P. cornicoides* Hutton (Forster's figure examined).

„ 20 : Species 119. *Hydrochelidon leucoparcia* (Natt. 1820)
antedates *H. hybrida* (Pall. 1827), and the Australian form must be
called *H. leucoparcia fluvialis* Gould.

„ „ Species 120. *Gelochelidon macrotarsa* Gould for the Australian bird, and
G. nilotica Gm. (1789)
replace *G. anglica* Mont. (1813).

„ „ Species 121. *Hydroprogne caspia* Pallas, *Nor. Comm. Petrop.* vol. xiv.
pt. i. 1769-70, p. 582. pl. xxii. fig. 2
vice *H. caspia* Mont.

In the *Amer. O. U. Check List* 3rd Ed. 1910 *Thalasseus* Boie has been accepted instead of *Hydroprogne*, but clearly the matter requires reconsideration. I make out the claim of *Hydroprogne* to stand as follows : *Thalasseus* was introduced by Boie in the *Isis* 1822 p. 563 for three species, *caspia*, *caniaca*, and *anglica*. Kaup

in *Skizz. Entw.-Gesch. Nat. Syst.* 1829 proposed new generic names: on p. 31 *Actochelidon* for *Sterna cantiaca*; *Hydroprogne* on p. 91 for *Sterna caspia* and *aranca (anglica)*; and on p. 97 gave *Thalassaea* with *Sterna Dougalli* as only species. Inasmuch as he thus typified *Thalassaea* (= *Thalasseus*) by a species not included in the original list his action cannot be accepted.

Brehm in the *Isis* 1830 p. 994, ignoring Kaup's action, divided Boie's genus into three, restricting *Thalasseus* to *Sterna cantiaca*, and inventing *Sylochelidon* for *Sterna caspia* and *Gelochelidon* for *Sterna anglica*. The following year in the *Vogel Deutschlands* pp. 767 *et seq.* Brehm fully described these genera, and absolutely settled the matter as regarding the type of *Thalasseus*. In 1840 Gray endorsed Brehm's action by selecting *cantiaca* as type of *Thalasseus* Boie. At the same time he noted Brehm's *Sylochelidon*, but did not know of Kaup's work. In 1855 Gray changed the type of *Thalasseus* to *caspia*, synonymizing *Hydroprogne* Kaup, and then accepting *Actochelidon* Kaup as typified by *cantiaca*. But there was no valid reason for such alteration, Gray's first action being quite legal, and, considering Brehm's work, the only course open to him. Moreover, Reichenbach in 1852 (*Naturl. Syst. Vogel* p. v, 1852) indicated *cantiaca* as the type of *Thalasseus*.

Page 21 : Species 128. *Sterna fuscata* Linné, *Syst. Nat.* XIIth Ed. p. 228 (1766)
replaces *Sterna fuliginosa* Gm. 1788.

„ 22 : Genus LXXVI. *Catharacta* Brünnich, *Orn. Boreal.* 1764. p. 32
replaces *Megalestris* Bonap. 1856.

The case of *Catharacta* versus *Megalestris* has been argued by J. A. Allen (*Luk* vol. xxi. p. 345, 1904), who decided in favour of the latter. Allen rejected *Catharacta* on account of a prior *Catarractes* of Brisson. As Brisson was a non-binomial author his name has no standing in scientific nomenclature. Brünnich's first species was *Catharacta skua*; his figured species was *C. cephus* = *Larus parasiticus* L. Allen argued that the latter species should be taken as type, but the former was accepted by Linné in the XIIth Ed. *Systema Naturae* as *Larus catarractes*, and hence "by virtual tautonymy" might be regarded as type. However, Gray in 1840 designated *Catarracta skua* as type of *Catarracta*, which genus, as was his wont, he assigned to Ray. I would agree to Gray's action, as by means of it we can preserve *Stercorarius* for the birds typified by *Larus parasiticus* by taking Schaeffer's introduction of that genus. Schaeffer utilized it for *Larus parasiticus* alone, following Linné in referring *catarractes* to *Larus*.

Page 22 : Genus LXXVII. *Stercorarius* Schaeffer, *Mus. Ornith.* 1789. p. 62
vice *Stercorarius* Brisson.

„ „ Species 142. *St. parasiticus* Linné, *Syst. Nat.* ed. x. p. 136 (1758)
replaces *St. crepidatus* Banks, 1773.

„ 23 : Genus LXXVIII. *Morinella* Meyer und Wolf, *Taschenb. d. Vogel* p. 383
note (1810)
replaces *Arenaria* Brisson.

„ 24 : Genus LXXXIII. *Squatarola* Cuvier, *Règne Animal* i. p. 467 (1817)
vice *Squatarola* Leach.

„ „ Species 150. The specific *squatarola* L. 1758. p. 149
replaces *helvetica* L. 1766.

„ 25 : Genus LXXXVIII. *Himantopus* Bonnatere, *Tabl. Enr. Meth. Ornith.*
pp. lxxxii & 24 (1790)
vice *Himantopus* Brisson.

- Page 26 : Genus XCI. *Numenius* Brünnich, *Zool. Fund.* p. 76 (1772)
vice *Numenius* Brisson.
- „ „ Genus XCIII. *Limosa* Schaeffer, *Mus. Ornith.* p. 52 (1789)
vice *Limosa* Brisson.
- „ „ Species 167. *L. baueri* Naumann, *Vogel Deutschl.* viii. p. 429 (1836)
replaces *L. noraezealandiae* Gray.
- „ 27 : Genus XCVII. *Actitis** Illiger, *Prodromus* p. 262 (1811)
replaces *Tringoides* Bonaparte, 1831.
- „ „ Genus CII. *Arenaria* Bechst.(not Brisson), *Ornith. Taschenb.* p. 462A (1803)
replaces *Calidris* Illiger, 1811.
- „ „ Species 178. The species name *leucophaea* Pallas in *Vroegs Catal.* p. 32.
1764
replaces *arenaria* Linné, 1766.
- „ 28 : Genus CIII. The reference given here is incorrect: it should read
Lönnberg, *J. f. O.* 1906. pp. 531-3.
- „ „ Genus CV. *Erolia* Vieillot, *Analyse* p. 55 (1816)
replaces *Ancylocheilus* Kaup, 1829.
- „ „ Species 182. The species name *ferruginea* Brünnich, *Orn. Boreal.* p. 53
(1764)
antedates *subarquatus* GÜldenst.
- „ „ Genus CVII. *Gallinago* Koch, *Die Säugthiere* p. 312 (1816)
vice *Gallinago* Leach.
- „ 29 : Genus CXI. *Trachelia* Scopoli, *Annus I, Hist. Nat.* p. 110 (1769)
replaces *Glareola* Brisson.
- „ 30 : Genus CXVI. *Ibis* Lacépède, *Tabl. Oiseaux* p. 18 (1799)
vice *Ibis* Cuvier, 1817.
- „ „ *Antigone rubicunda* Perry, *Arcana*, June 1810
antedates *A. australasiana* (Gould).
- „ 31 : Genus CXVIII. *Egatheus* Billberg, *Syn. Faunae Scand.* i. p. 166 (1828)
replaces *Plegadis* Kaup.
- „ 32 : Genus CXXVI. *Egretta* Forster, *Syn. Cat. Brit. Birds* p. 59 (1817)
replaces *Garzetta* Kaup, 1829.
- „ 33 : Genus CXXVIII. *Nycticorax* Forster, *Syn. Cat. Brit. Birds* p. 59 (1817)
vice *Nycticorax* Rafinesque.
- „ „ Genus CXXX. *Ixobrychus* Billberg, *Syn. Faunae Scand.* i. p. 166 (1828)
replaces *Ardetta* Gray, 1842.
- „ „ Genus CXXXII. *Botaurus* Stephens, in Shaw's *General Zoology* vol. xi.
part ii. p. 592 (1819)
vice *Botaurus* Brisson.
- „ 36 : Genus CXLVII. *Nyroca* Fleming, *Philos. Zool.* ii. p. 260 (1822)
replaces *Aythya* Boie (preoccupied).†
- „ 37 : Genus CL. *Carbo* Lacépède, *Tableau Oiseaux* p. 15 (1799)
replaces *Phalacrocorax* of Brisson.

* *Actitis* Illiger (*Prodromus* p. 262, 1811) was introduced for a number of species, one of which was *hypoleucos* L. In the *Isis* p. 560, 1822, Boie only included this species under *Actitis*, placing the other members of Illiger's genus in other genera. Consequently this can be considered as restriction, and thus *hypoleucos* becomes the type of *Actitis* Illiger. Bonaparte in the *Giornale Arcadio* vol. iii. p. 57, 1831, proposed *Tringoides* as a substitute for "*Actitis* Boie nec Ill." As Boie's genus was part of Illiger's I do not accept Bonaparte's name.

† Cf. Dapiez, *Diet. Class. d'Hist. Nat.* i. p. 128 (1822), and Stone, *Ann* 1807, p. 190.

Page 38 : Genus CLII. *Sula* Scopoli, *Intro. Hist. Nat.* p. 474 (1777)
vice *Sula* Brisson.

„ „ Genus CLIII. *Fregata* Lacépède, *Tableau Oiseaux* p. 15 (1799)
vice *Fregata* Brisson.

„ 40 : Genus CLVIII. *Nisus* Lacépède, *Tableau Oiseaux* p. 4 (1799)
replaces *Accipiter* Brisson.

There need be no sentiment with regard to the rejection of *Accipiter*. Brisson introduced two genera for the *Falconidae*, viz. *Aquila* and *Accipiter*, whilst Linné classed all under *Falco*. Inasmuch as Brisson did not recognize Linné's genus, his names cannot be accepted as constituting a subdivision of the Linnean genus. The first use I have traced of *Accipiter* in binomial nomenclature is that of S. G. Gmelin in the *Noc. Comm. Acad. Petrop.* vol. xv. p. 439, 1771, when three species are named, none of which are referable to *Accipiter* (auct.). The first disintegration of the Linnean *Falco* was made by Lacépède, who divided it into seven genera—*Aquila*, *Astur*, *Nisus*, *Buteo*, *Circus*, *Milvus*, and *Falco*: these genera had previously been many times indicated as sections but no sectional names correctly introduced. The researches of Mr. C. Davies Sherborn have proved the valid introduction of these names in 1799, and as species were added almost immediately (*Natural Science*, p. 406, 1899), there can be no disputing the acceptability of Lacépède's divisions. *Circus* and *Astur* are already commonly recognized as of Lacépède, as noted in my *Handlist*, p. 39, Genera CLVI. and CLVII.

Page 44 : Genus CLXXV. *Tyto* Billberg, *Syn. Faunae Scand.* i. tab. A (1828)
replaces *Strix* (auctorum, non Linné 1758 !)

In the *Amer. O. U. Check List*, 3rd Ed. 1910, *Aluco* Fleming, 1822, is chosen to replace the name *Strix* now generally in use for the Barn Owls. That name, however, is preoccupied by Link, *Besch. Naturl. Samml.* p. 130 (1807), for a genus of Molluscs! The next name in order appears to be *Tyto* of Billberg as given above. Billberg, in 1820, had previously proposed *Tyta* for a genus of Insects, so that some may consider the name *Tyto* preoccupied. In that case *Hybris* Nitzsch (*Syst. Pteryl.* p. 100, 1840) would have a claim.

Page 47 : *Licmetis tenuirostris* Kuhl, *Consp. Psitt.* p. 88 (1820)
replaces *L. nasica* Temminck.

„ 48 : *Polytelis anthopeplus* Vigors in Lear's *Mon. Psitt.* pt. 8, October 1, 1831
replaces *P. melanura* id., ib. pt. 12, 1832.

„ 49 : *Platygeercus browni* Kuhl, *Consp. Psitt.* p. 56 (1820)
replaces *P. flaviventris* Temminck.

„ „ *Platygeercus venustus* Kuhl, *Consp. Psitt.* p. 52 (1820)
replaces *P. browni* Temminck.

„ 51 : *Neophema chrysostoma* Kuhl, *Consp. Psitt.* p. 50 (1820)
replaces *N. venusta* Temminck.

„ 56 : Genus CCXIII. *Collocalia* Gray, *List Genera Birds* p. 8 (1840)
replaces "*Salangana* Thumb."

(Cf. Richmond, *Proc. U. S. Nat. Mus.* xxxv. p. 640, 1908.)

„ „ Genus CCXV. *Apus* Scopoli, *Intro. Hist. Nat.* p. 483 (1777)
replaces *Cypselus* Illiger, 1811.

If *Apus* Scopoli be considered preoccupied by *Apos*, introduced earlier in the

same work by the same writer, then *Micropus* Meyer und Wolf (1810) still antedates *Cypselus* Illiger, 1811.

Page 60 : Genus CCXXVI. *Chelidon*, Forster, *Syn. Cat. Brit. Birds* p. 17 (1817)
replaces *Hirundo* (auct.).

„ 75 : *Acanthira archibaldi*
replaces *A. magnirostris* Campbell (not Gould).

„ 102 : *Munia flaviprymna*
replaces *M. xanthoprymna*.

„ 103 : *Poëphila atropygialis*
replaces *P. nigrotecta*.

The following list contains names which appear to be first introduced into binomial nomenclature at the place given, and I am recording them for the sake of criticism.

Brünnich in the *Zool. Fund.*, 1772, gave diagnoses of some ninety-two genera, and hence many “Brissonian genera” can be utilized as of this place, as Brünnich mainly followed Brisson. Scopoli, in the *Intro. Hist. Nat.* 1777, also noted some ninety-two names, but he used side by side the different names given by Brisson and Linné to similar groups, so that a disturbing factor is here met with. Schaeffer, in the *Elem. Ornith. Icon.* 1774, and 2nd Ed. 1779, reproduced the Brissonian classification, but in these works he was not binomial; in the *Mus. Ornithol.* 1789 he still followed the Brissonian scheme but adopted binomiality; he applied the system most consistently, as out of two hundred and twenty-nine species recorded, in only seven instances are other than binomials used. This work must therefore be accepted, and through it other Brissonian names gain a valid introduction. A few other Brissonian generic names were binominally used by such writers as Pallas, S. G. Gmelin, Boddaert, etc., and as a consequence few of the “Brissonian genera” need alteration save as to the authority.

Anser Pallas, *Spic. Zool.* (6) p. 21 (1769)
vice *Anser* Brisson.

Aquila S. G. Gmelin, *Noc. Comm. Petrop.* vol. xv. p. 445 (1771)
vice *Aquila* Brisson.

Asio Schaeffer, *Mus. Ornith.* p. 10 (1789)
vice *Asio* Brisson.

Carduelis Schaeffer, *Mus. Ornith.* p. 23 (1789)
vice *Carduelis* Brisson. This name also antedates *Acanthis* Borkhausen, 1797.

Ciconia Brünn., *Zool. Fund.* p. 74 (1772)
vice *Ciconia* Brisson.

Coccothraustes Schaeffer, *Mus. Ornith.* p. 28 (1789)
vice *Coccothraustes* Brisson.

Colinus Brünn., *Zool. Fund.* p. 90 (1772)
vice *Colinus* Brisson.

Corvira Brünn., *Zool. Fund.* p. 72 (1772)
vice *Corvira* Brisson.

Cotinga Boddaert, *Tabl. Pl. enlum.* p. 14 (1783)
vice *Cotinga* Brisson.

Curcirostra Scopoli, *Intro. Hist. Nat.* p. 489 (1777)
appears to have a prior right to *Loxia* Linn. (auct.).

In the place quoted Scopoli separated *Loria curvirostra* L. with the generic appellation above given. As he retained *Loria* (p. 483) for the other species his action seemed unassailable. In the *Bull. Amer. Mus. Nat. Hist.* vol. xxiii. p. 356, 1907, Allen wrote: "Type (of *Loria*) by restriction *Loria curvirostra*, the first species." In the next volume (p. 36), recognizing his error, he claimed it as designated by Gray, 1840, and it is thus accepted in the *Amer. O. U. Check List* 1910. Allen, however, noted "Brehm (1827) had founded *Curvirostra* for the Crossbills, of which *L. curvirostra* is type by tautonymy." Scopoli's fifty-year-prior introduction, legitimately made, seems to nullify all later action with regard to the fixation of *L. curvirostra* as type of *Loria*. As a matter of historical interest, Dandin, *Traité d'Ornith.* ii. p. 355 (1800), and Forster, *Syn. Cat. Brit. B.* p. 10 (1817), had both correctly proposed *Curvirostra* for the Crossbills prior to Brehm's *Curvirostra* (1827). There appears to be no other course legally open save the recognition of Scopoli's genus for the group of *Loria curvirostra* Linné.*

Fratercula Schaeffer, *Mus. Ornith.* p. 61 (1789)

vice *Fratercula* Brisson.

Garrulus Schaeffer, *Mus. Ornith.* p. 14 (1789)

vice *Garrulus* Brisson.

Gelochelidon nilotica Gm., *Syst. Nat.* i. p. 603 (1789)

replaces *G. anglica* Mont. (1813).

Lagopus Schaeffer, *Mus. Ornith.* p. 2 (1789)

vice *Lagopus* Brisson.

Manacus Pallas, *Spic. Zool.* (6) p. 21 (1769)

vice *Manacus* Brisson.

Momotus Brünnich, *Zool. Fund.* p. 84 (1772)

vice *Momotus* Brisson.

Nucifraga Schaeffer, *Mus. Ornith.* p. 14 (1789)

vice *Nucifraga* Brisson.

Megalornis Gray, *List Genera of Birds* 2nd Ed. p. 85 (1841)

must replace *Grus* (auct.), not of Pallas 1766.

In the *Amer. O. U. Check List* 3rd Ed. 1910, *Grus* has been daringly retained as of Pallas 1766, and the type is given as, by tautonymy, *Ardea grus* Linné. If this can be recognized, why should there have been any discussion regarding *Strix* Linné, 1758, and its type? As shown by Allen himself, *Bull. Amer. Mus. Nat. Hist.* xxiii. p. 313, 1907, *Grus* Pallas, 1766, is an absolute synonym of *Psophia* Linné, 1758. Pallas in *Misc. Zool.* p. 66, 1766, introduced *Grus* with relation to *Psophia crepitans* L.: in *Spic. Zool.* (4) p. 1, 1767, he again referred to it in the same connection. In 1773 Pallas (*Reise Proc. Russ. Reichs* ii. p. 714) introduced a new species of *Grus*, which is now the type of *Leucogeranus*.

Gray recognized the truth in 1841, and correctly synonymizing *Grus* Pallas with *Psophia* Linné, proposed *Megalornis* for the species typified by *Ardea grus* Linné.

* This note of Mr. Mathews is of interest as it brings to light Scopoli's name *Curvirostra* 1777. If the method of elimination alone is used, *Curvirostra* must indeed replace *Loria* auctorum. Mr. Mathews is quite right in saying that *Curvirostra* of Forster and Cuvier is older than *Curvirostra* of Brehm, and that all these antedate Gray's designation of 1840. On the other hand, *L. curvirostra* is the type of *Loria* by the rule of tautonymy, the name of the genus being like the synonym of one of its species and evidently based upon that name.—If this course is followed here, terrible confusion will be avoided. I cannot, however, agree that "general consent," as Dr. Allen says (*Bull. Amer. Mus.* xxiii. p. 356), has anything to do with our decision.—E. H.

Passer Schaeffer, *Mus. Ornith.* p. 24 (1789)

vice *Passer* Brisson.

Perdix S. G. Gmelin, *Nor. Comm. Acad. Petrop.* xv. p. 448 (1771)

vice *Perdix* Brisson.

Phalaropus Brünnich, *Zool. Fund.* p. 72 (1772)

vice *Phalaropus* Brisson.

Pica Schaeffer, *Mus. Ornith.* p. 13 (1789)

vice *Pica* Brisson.

Pyrrhula Schaeffer, *Mus. Ornith.* p. 30 (1789)

vice *Pyrrhula* Brisson.

Spheniscus Brünnich, *Zool. Fund.* p. 78 (1772)

vice *Spheniscus* Brisson.

Scops Brünnich, *Zool. Fund.* p. 74 (1772)

vice *Scopus* Brisson.

Thalasseus Boie, *Isis* p. 563 (1822)

replaces *Actochelidon* Kaup, 1829.

Turtur Boddaert, *Tabl. Planches Entom.* p. 10 (1783)

replaces *Chalcopelia* Bonap., 1857.

and *Streptopelia* Bonap., *Consp. Az.* ii. p. 63 (1857)

replaces *Turtur* Selby, 1835, not Boddaert 1783.

At the place quoted Boddaert gives the following: "Pl. 160. Tourterelle du Sénégal. Buff. vi. p. 394. Briss., *Ornith.* i. p. 122. pl. x. fig. 1. *Turtur afra* Linn. 104. 34."

Linne's *Columba afra* was founded upon Brisson's bird. The acceptance of Boddaert's work necessitates the above alterations.

Uria Brünnich, *Orn. Boreal.* p. 27 (1764)

vice *Uria* Brisson.

Vanellus Schaeffer, *Mus. Ornith.* p. 49 (1789)

vice *Vanellus* Brisson.

Vaginalis Gmelin, *Syst. Nat.* XIIIth Ed. vol. i. p. 705 (1788)

should replace *Chionis* Forster, 1788.

This is a most curious instance of perversity in the choice of generic names. Forster in the *Enchiridion* 1788 gave diagnoses of genera only: eighty-one names in all, of which only three were new. Of even date Gmelin proposed new generic names for two of these, with good definitions and species cited. Legally both of Gmelin's genera have priority, but one has been accepted, the other rejected, though the conditions are absolutely identical in each case. Moreover, in this case there is a prior *Chion* (Scopoli, *Intro. Hist. Nat.* p. 398, 1777), which may be considered by some authorities to preoccupy *Chionis*.

I am indebted to Mr. Tom Iredale for much help with the foregoing work.

NOTES ON *MELIORNIS NOVAEHOLLANDIAE*
NOVAEHOLLANDIAE AND *M. N. DIEMENENSIS*.

By GREGORY M. MATHEWS.

IN a collection of skins from New South Wales sent me by my friend Dr. J. Barton Cleland I notice a change in the colour of the iris from the "café-an-lait" colour of the immature male, first into greyish white, then to a white very faintly tinged with grey (in a male with small testes), and finally to enamel-white in a fully adult male with enlarged testes.

All the fully adults have quite white iris.

It is also interesting to note that a specimen of *Zosterops caeruleascens* in full breeding plumage was obtained in June, *i.e.* in the Australian winter.

DESCRIPTION OF THE EGGS OF

Meliornis novaehollandiae diemenensis Mathews.

Clutch three. Shape roundish, surface slightly glossy. Ground-colour buff, with a tinge of pink; at the larger end a band of reddish spots with fewer grey-brown ones. Axis 19·5, diameter 15·5 mm.

NOTES ON *ARCTIANAE* AND DESCRIPTIONS OF A FEW
 NEW SPECIES.

By THE HON. WALTER ROTHSCHILD, PH.D.

1. *Automolis schistaceus* sp. nov.

♂. This is nearest to *A. ardesiaca* Rothsch. Pectus slate-grey with steel-green gloss; palpi black with steel-green gloss; head and antennae black; tegulae and shoulder-patches buffy yellow; rest of patagia and thorax slate-grey; first two segments of abdomen dark buffy yellow, rest of abdomen blackish slate, a paler grey patch on terminal and subterminal segments.—Forewing slate-grey, a buffy yellow transverse band reaches from the costa to inner margin across centre of cell expanding towards inner margin. Hindwing, basal two-fifths buffy yellow, apical three-fifths slate-grey.

Length of forewing: 20—23 mm.

Hab. San Esteban, Venezuela, June 1909 (S. M. Klages).

2 ♂♂.

2. *Automolis tanialoides* sp. nov.

♂. Very close to *taniala* Schaus and *latania* Druce. Legs orange-yellow, forecoxae orange-yellow, middle and hindcoxae earth-brown; palpi orange-yellow; head black, metallic blue spots on frons and vertex, spots at base of antennae and band across frons orange-yellow; tegulae orange with broad sooty black lateral

margins; patagia and thorax orange, latter with broad central sooty stripe; abdomen black, dorsal and subdorsal metallic blue patches on last four segments, large latero-subdorsal patches of orange on second segment and smaller ones on third; antennae black.—Forewing orange, a wide brown-black marginal band expanding broadly at termen and narrowing sharply from centre to base of inner margin. Hindwing, costal half orange, lower half brown-black.

Length of forewing: 20.5 mm.

Hab. San Esteban, Venezuela, June 1909 (S. M. Klages).

5 ♂♂.

With this new species came 25 ♂♂ of *A. latania* Druce.

3. *Automolis pseudoguapisa* sp. nov.

♀. Closely allied to *guapisa* Schaus. Pectus and coxae metallic blue; palpi brown-black; legs, tarsi orange, tibiae brown-black; head black, blue spots on frons and vertex, minute orange spots at base of antennae; antennae black; tegulae and patagia orange with broad brown-black borders; thorax brown-black; abdomen black with dorsal and lateral blue patches, underside of abdomen black with subdorsal orange patches on first three segments.—Forewing dark purple-brown, nervures pale earth-brown, an oblique orange streak from base of vein 1 to base of vein 2 and a very indistinct orange-brown patch between veins 5 and 6. Hindwing deep purple-brown, an orange rather narrow band runs from base of wing through cell two-thirds across the wing.

♂. Pectus deep blue; forelegs, tarsi and tibiae orange, coxae black-brown with orange patch on inner side at base; palpi and antennae black-brown; head black, a blue patch on frons and vertex, orange spot at base of antennae larger than in ♀, tegulae and patagia more orange, *i.e.* with narrower dark borders; abdomen with subdorsal yellow patches, which in two specimens are almost obsolete.—Forewing dark purple-brown with yellowish nervures, an orange oblique band crosses the wing from just before base of vein 1 to middle of vein 6. Hindwing, costal half dark yellow with central dark stigma, tornal half dark brown.

Length of forewing: ♀ 23.5 mm.; ♂ 17—22 mm.

Hab. San Esteban, Venezuela, June 1909 (S. M. Klages).

10 ♂♂, 2 ♀♀ (♀ type).

4. *Neritos syntomoides* sp. nov.

♂. This remarkable little insect is almost an exact mimic of the Syntomid *Lorophlebia hemileuca* Butl. Pectus, coxae and tibiae pale yellow; tarsi pale brown; palpi brown; head black; shoulder-patches orange, rest of thorax black; abdomen deep orange, last segment black; antennae brown tipped with white.—Forewing black, a large ovate orange patch below cell reaching from median nervure to inner margin, a white wedge-shaped patch in cell, and a large buff patch beyond cell reaching from vein 3 to subcostal nervure; termen narrowly white. Hindwing, basal two-thirds orange, marginal third black.

Length of forewing: 12.5 mm.

Hab. Aroewarwa Creek, Maroewym Valley, Surinam, June 1905 (S. M. Klages).

1 ♂.

In my former articles on *Arctiinae* I described two insects as *Halisidota walkeri* and *H. walkeri major*. *H. walkeri* is true *catenulata* Hübn. The origin of

this error was that the insect which has stood in most collections, my own included, as *catenulata* Hübn. is *texta* Herr. Schäff., which latter Sir George Hampson put as a synonym of *catenulata* Hübn. but which is a perfectly distinct species. The ♂ of my *walkeri major* is a good species and must stand as *Halisidota major* Rothsch., but the ♀ I associated with it is a ♀ of *annulosa* Walk.

I unfortunately identified a wrong insect as *Halisidota androlepia* Dogn., and so redescribed the true *androlepia* as *sobrenoides*. I here describe what I had under the name of *androlepia* as :

5. *Halisidota dognini* sp. nov.

♂. Legs orange-buff ringed with brown; pectus buff; palpi orange-buff, extreme tip of third segment brown; head orange-buff; antennae pale brown; thorax orange-buff with black dots on tegulae and patagia; abdomen buff washed with a darker shade.—Forewing deep orange-buff, nervures orange, the whole wing sown with dark brown dots and spots, a quadrate dark brown patch in cell and a larger irregular one on discocellulars. Hindwing semihyaline buff.

♀. Similar but larger.

Length of forewing: ♂ 25 mm.; ♀ 28 mm.

Hab. Santo Domingo, Carabaya, Pern, 6000 ft., wet season, January 1902 (G. R. Ockenden).

A small series of ♂♂ and ♀♀.

My *Diacrisia pseudomaenas* is the true *venosa* Moore; the insect called *venosa* in the *British Museum Catalogue* is *D. neurica* Hmps., nom. nov.

Automolis hyalina Rothsch. belongs to the genus *Antaxia*.

Automolis collateralis Rothsch. nec Hmps. = *Automolis maura* Schaus.

Ischnocampa pellucida Rothsch. = *Microdota lenistriata* Dogn.

Hyponerita borealis Rothsch. = *Neritos tipolis* Druce.

Mallocephala venosa Rothsch. = ♂ of *Maenas surgens* Walk.

Haemanota cubana Rothsch. = *Neritos sanguidorsia* Schaus.

A NEW FORM OF *ATTACUS*.

By THE HON. WALTER ROTHSCCHILD, PH.D.

Attacus dohertyi wardi subsp. nov.

Differs from *A. d. dohertyi* by the vitreous wing-patches being rounded on the inner side ; by the absence of a pale patch on forewing beyond the vitreous patch ; by the red streak in apex of forewing between veins 5 and 6 being only 5 mm. instead of 14 mm. long ; in the submarginal line of hindwing being purple and not black, and in the patches behind the submarginal line on underside of hindwing being almost absent : it is also much smaller.

Length of forewing : ♂ 86 mm. ; ♀ 95—102 mm.

Hab. Port Darwin, N.W. Australia (F. P. Dodd).

1 ♂ (type) and 1 ♀ in the British Museum ; 1 ♂ and 1 ♀ in the Tring Museum.

This insect is named after the son of the Earl of Dudley, who presented the type to the British Museum.

The female in the British Museum is paler and more yellowish than my specimen of that sex.

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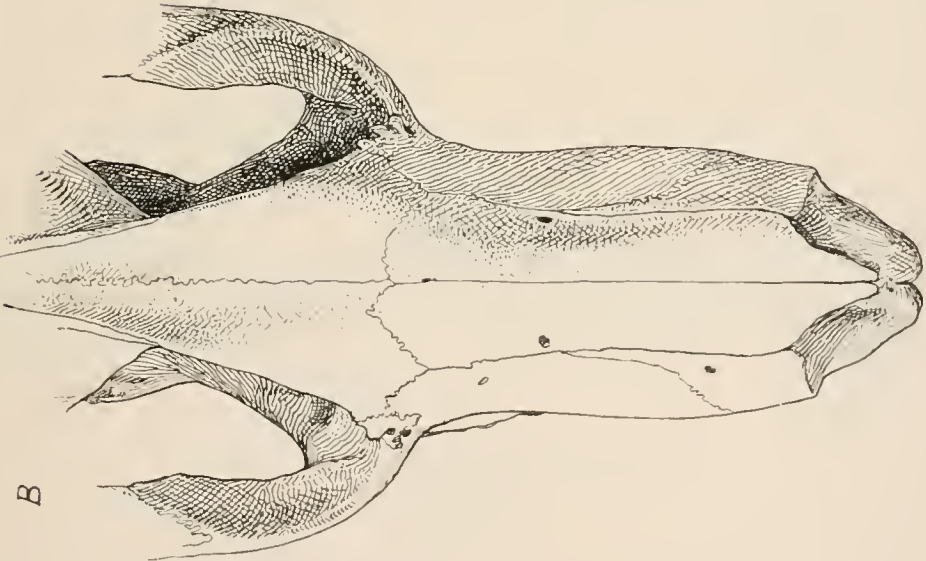
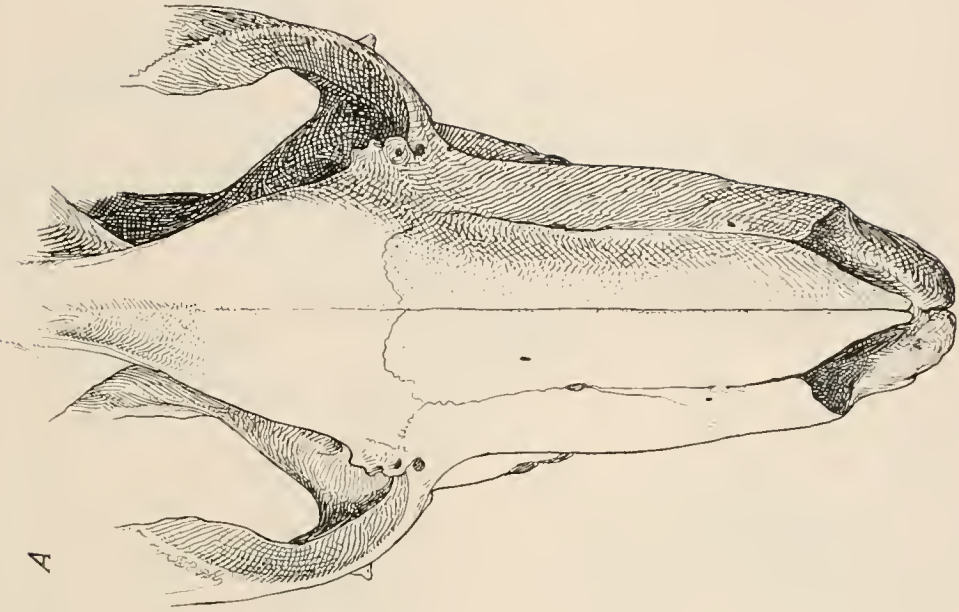
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 — (Neeressa), 439.
 — (Pericallia), 170.
 — (Urocissa), 189, 254.
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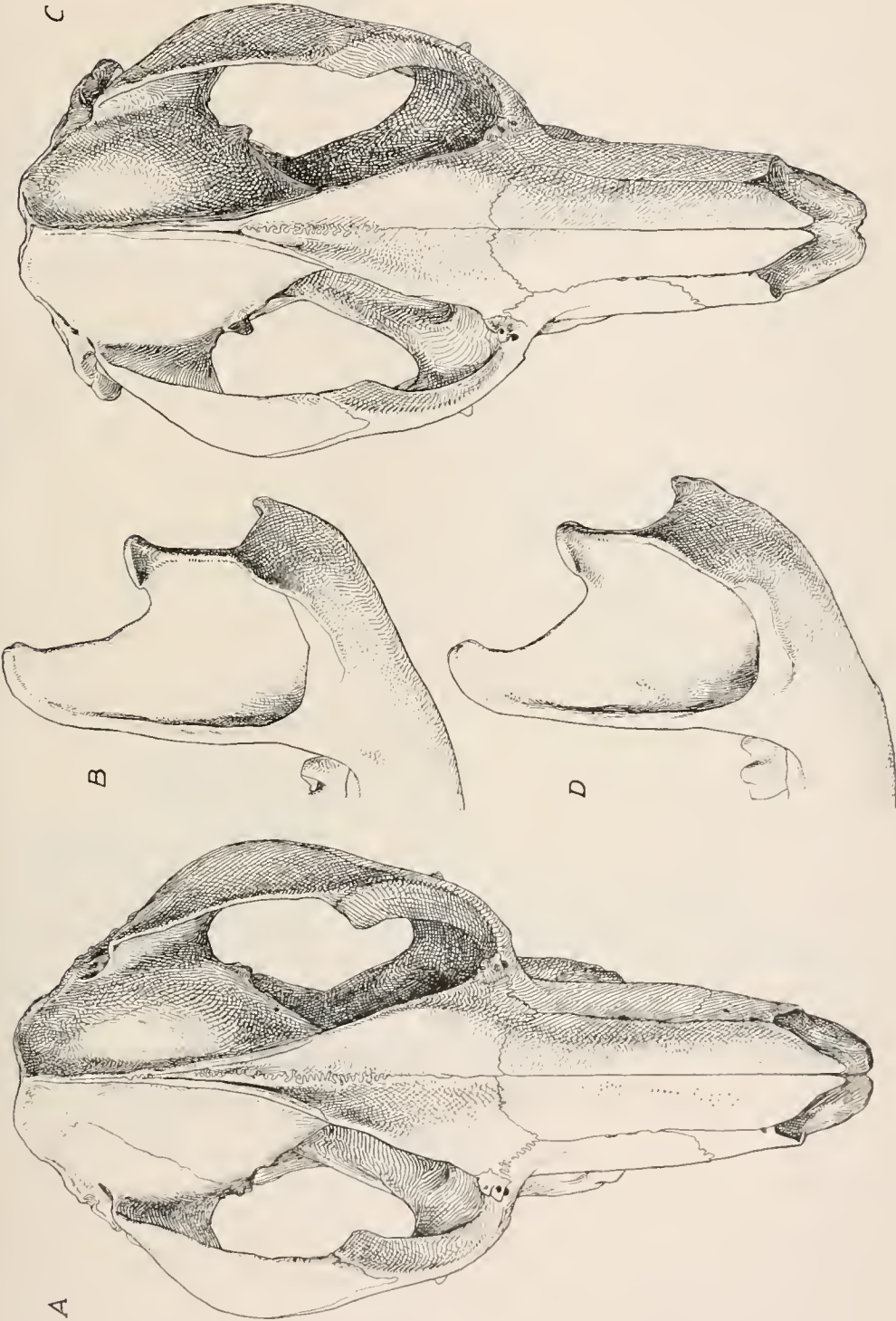
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 Zebrilus, 424.
 zenzeroides (Automolis), 24.
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TERZI del.

A. *Macropus robustus cervinus*, ♂ ad. P. M. *M. cubensis*, ♂ ad.
(Natural size.)

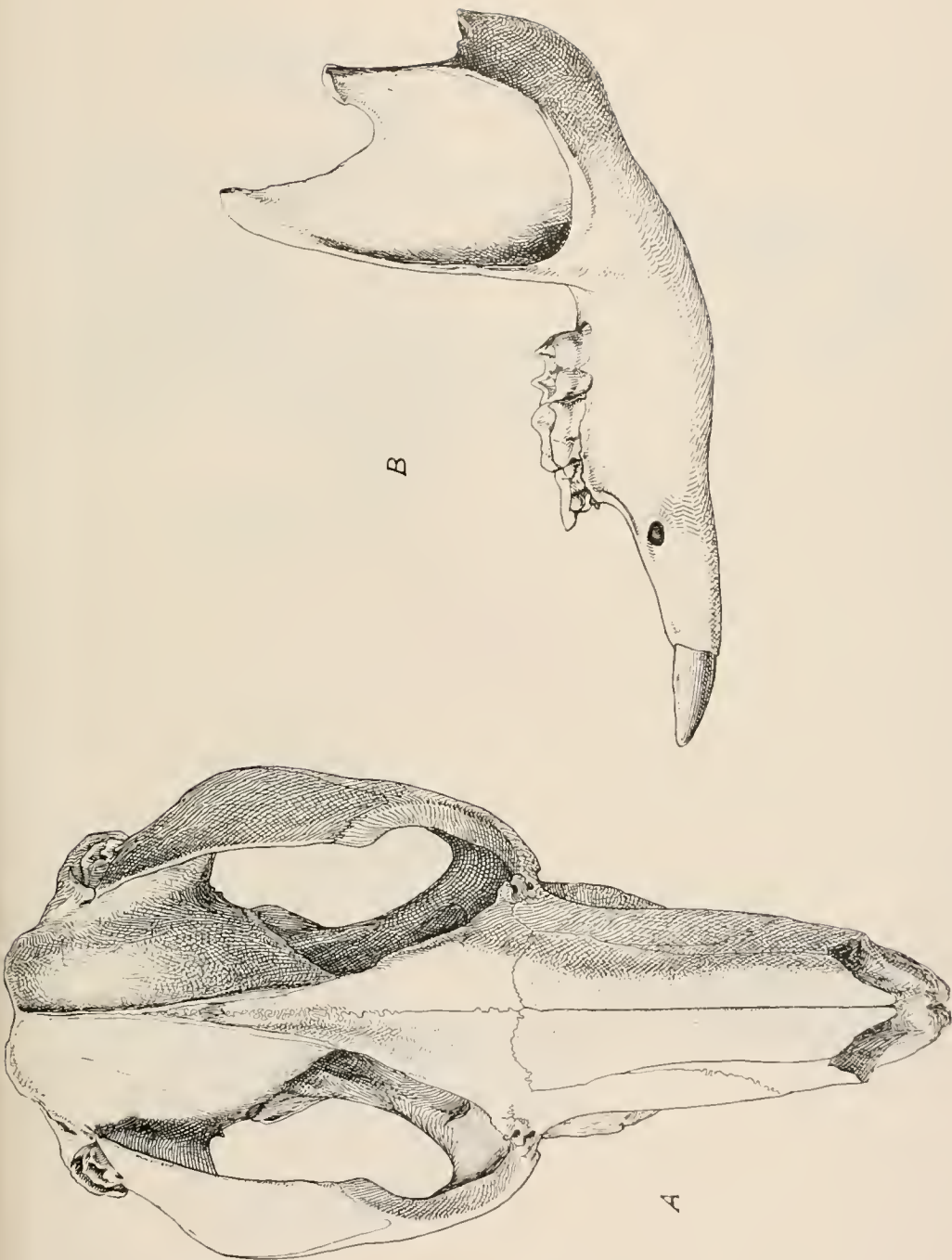




TERZI del.

A, B. *Macropus robustus woodwardi*, ♂ ad. C, D. *M. r. alligatoris*, ♂ ad.
(Reduced by one-third.)



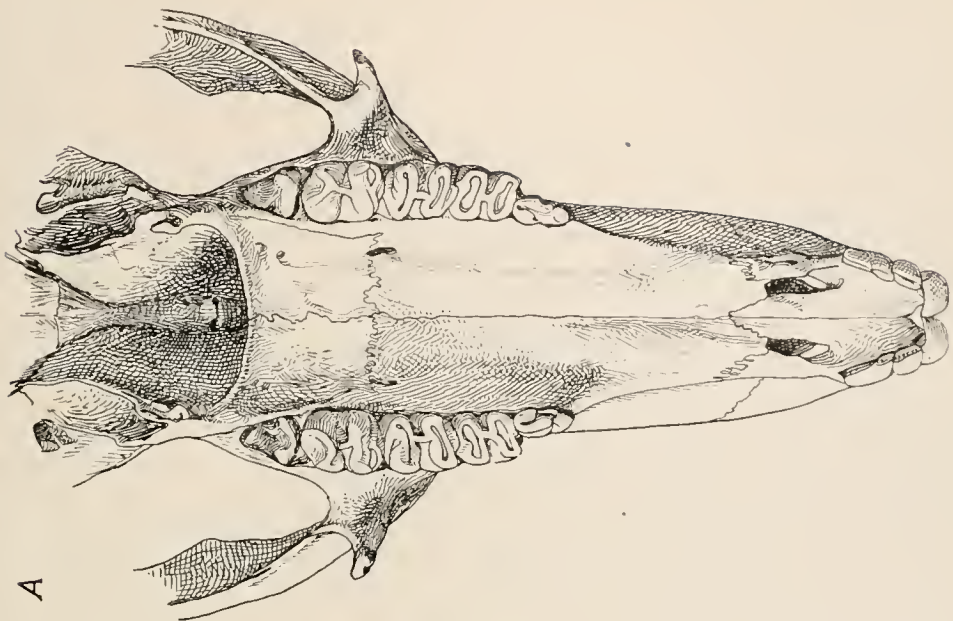


TERZI del.

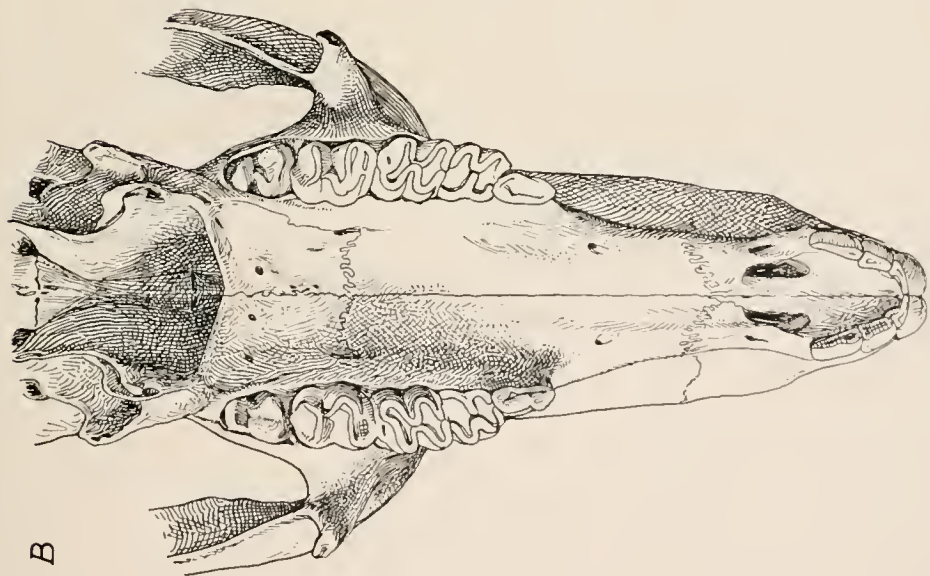
A, B. *Macropus robustus alexandriae*. ♂ ad.

(Reduced by one-fifth.)





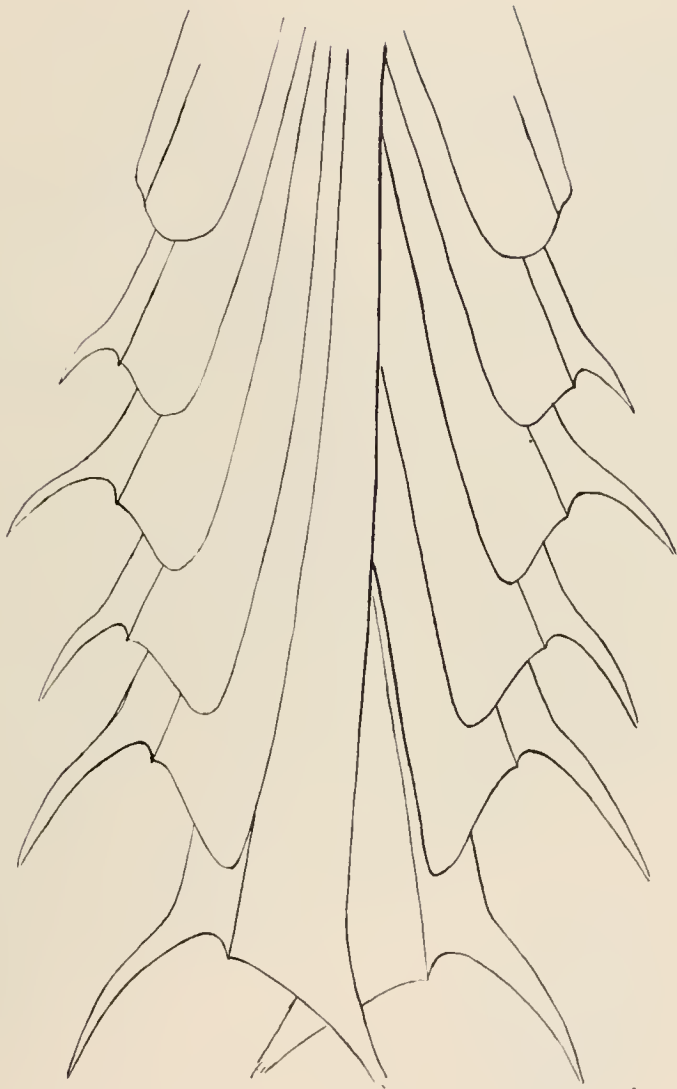
A



B

TERZI del.
A. *Macropus robustus reginae*, ♂ subad. B. *M. r. erubescens*, ♂ subad.
(Natural size.)





Tail of *Temnurus nigra*.





H. Gronvold del et lith

West, Newman imp

UROCISSA WHITEHEADI





- | | |
|-----------------------|-----------------------|
| 1 SPELAEORNIS SOULIEI | 2 SPELAEORNIS CAUDATA |
| 3 SPELAEORNIS OATESI | 4 SPHENOCICHLA HUMEI |







MIROUNGA LEONINA PATAGONICA Gray



EXPLANATION OF PLATE X.

1. <i>Paradisca angustarictariae</i>	p. 489
2. <i>Selenicides ignotus</i>	„ 488
3. <i>Paradisca ragghiana</i>	„ 489
4. <i>Paradisca radolphi</i>	„ 489
5. <i>Ptilorhis victoriar</i>	„ 488
6. <i>Paradisca minor minor</i>	„ 489
7. <i>Paradisca minor finschi</i>	„ 489
8. ~~<i>Asterops stephaniae</i>~~ <i>Falcinellus striatus meyeri</i>	488
9. <i>Ptilorhis magnifica intercedens</i>	„ 488
10. <i>Phonygammus jamesi</i>	„ 490
11. <i>Mamucodia comrii</i>	„ 490
12. <i>Mamucodia atra altera</i>	„ 490
13. <i>Mamucodia chalybata orientalis</i>	„ 490
14. <i>Acluroedus buccoides griseorum</i>	„ 485
15. <i>Chlamydera nuchalis nuchalis</i>	„ 486
16. <i>Chlamydera cerviniventris</i>	„ 486
18. <i>Scenopoetes dentirostris</i>	„ 485
19. <i>Acluroedus maculosus</i>	„ 485
20. <i>Parotia serripennis laevis</i>	„ 487
21. <i>Prionodura newtoniana</i>	„ 487
22. <i>Lophorina superba minor</i>	„ 487
23. <i></i>	



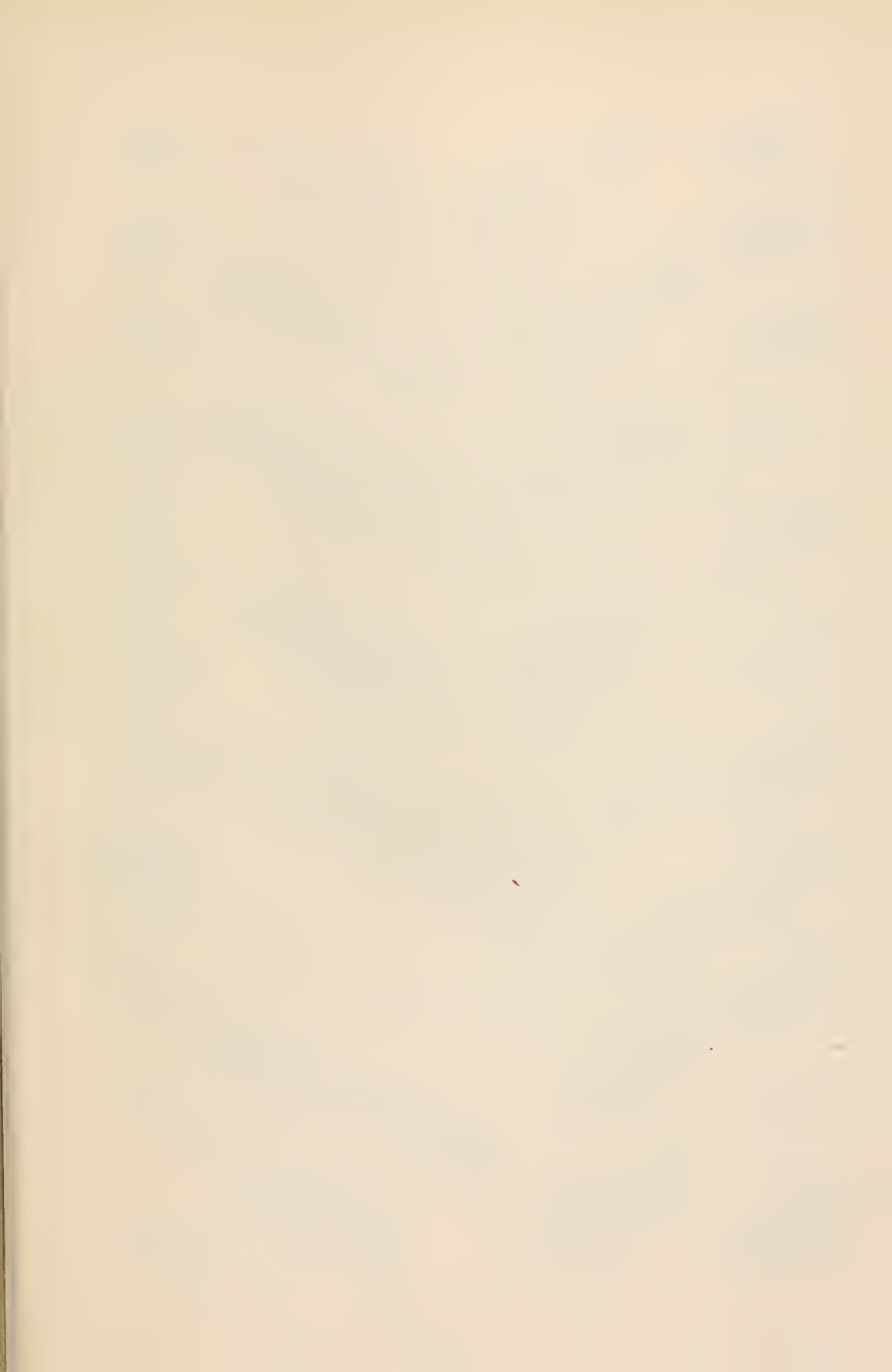


PLATE XI.

1, 2.	<i>Halsidota fuliginosa</i>	Rothsch.	♂ ♀	.	.	.	.	.	.	p. 60
10, 11.	"	<i>atra</i>	Druce.	♂ ♀	.	.	.	.	.	"
28, 29.	"	<i>bricenoi</i>	Rothsch.	♂ ♀	.	.	.	.	.	"
19, 20.	"	<i>interlineata</i>	<i>interlineata</i>	Walk.	♂ ♀	.	.	.	.	"
12, 13.	"	"	<i>intensa</i>	Rothsch.	♂ ♀	.	.	.	.	p. 61
3, 4.	"	<i>underwoodi</i>	<i>underwoodi</i>	Rothsch.	♂ ♀	.	.	.	.	p. 60
30, 31.	"	"	<i>orientalis</i>	Rothsch.	♂ ♀	.	.	.	.	"
6, 7.	"	<i>cinctipes</i>	<i>cinctipes</i>	Grote.	♂ ♀	.	.	.	.	p. 61
23, 24	"	"	<i>meridensis</i>	Rothsch.	♂ ♀	.	.	.	.	"
32, 33.	"	"	<i>insularis</i>	Rothsch.	♂ ♀	.	.	.	.	"
16, 17.	"	"	<i>tucumana</i>	Rothsch.	♂ ♀	.	.	.	.	"
18, 27.	"	<i>davisi</i>	H. Edw.	♂ ♀	.	.	.	.	.	"
21, 22.	"	<i>schausi</i>	<i>schausi</i>	Rothsch.	♂ ♀	.	.	.	.	"
14, 15.	"	"	<i>pallida</i>	Rothsch.	♂ ♀	.	.	.	.	"
5.	"	"	<i>brasiliensis</i>	Rothsch.	♀	.	.	.	.	"
25, 26.	"	<i>steinbachii</i>	Rothsch.	♂ ♀	.	.	.	.	.	p. 62
8, 9.	"	<i>tessellaris</i>	<i>tessellaris</i>	Abbot & Smith.	♂ ♀	.	.	.	.	p. 61
34, 35.	"	"	<i>meridionalis</i>	Rothsch.	♂ ♀	.	.	.	.	p. 62
36, 37.	"	<i>oslari</i>	Rothsch.	♂ ♀	.	.	.	.	.	p. 61







	1.	<i>Ochrodota similis</i> Rothsch.	♂	p. 36
	2.	" <i>tessellata</i> Rothsch.	♂	" "
	3.	" <i>brunnescens</i> Rothsch.	♂	" "
	4.	" <i>affinis</i> Rothsch.	♀	" "
	5.	" <i>atra</i> Rothsch.	♂	" "
	6.	<i>Tessellarctia distincta</i> Rothsch.	♂	" "
	7.	<i>Carathis klagesi</i> Rothsch.	♂	p. 37
	8.	" <i>australis</i> Rothsch.	♀	" "
	9.	<i>Neidalia dogmini</i> Rothsch.	♂	p. 6
	10.	<i>Zatrephes rufescens</i> Rothsch.	♂	p. 12
	11.	<i>Halisdota baritioides</i> Rothsch.	♂	p. 70
	15.	" <i>cinnamomea</i> Rothsch.	♀	p. 69
	18.	" <i>terranea</i> Rothsch.	♂	p. 59
	22.	" <i>bombycina</i> Rothsch.	♀	p. 69
	31.	" <i>nigrescens</i> Rothsch.	♀	" "
	35.	" <i>setosa</i> Rothsch.	♂	p. 59
	36.	" <i>oruboides</i> Rothsch.	♂	p. 62
	37.	" <i>similis</i> Rothsch.	♂	" "
38, 39,	40.	" <i>punctata</i> Rothsch.	♂ ♂	p. 70
	41.	" <i>flavescens</i> Rothsch.	♀	p. 69
	42.	" <i>hoffmannsi</i> Rothsch.	♂	p. 59
	12.	<i>Paracnerita odorata</i> Rothsch.	♂. See Ann. Mag. N. H. iv. 1909. p. 220.	
	13.	" <i>purpureascens</i> Rothsch.	♂. " " " "	
	14.	<i>Elysius ammeloides</i> Rothsch.	♂	p. 43
	21.	" <i>magnifica</i> Rothsch.	♂	" "
	23.	" <i>terranea</i> Rothsch.	♂	p. 42
	16.	<i>Hemihyalea testacea</i> Rothsch.	♂	p. 51
	17.	" <i>tristis</i> Rothsch.	♂	p. 50
	24.	" <i>fusca fusca</i> Rothsch.	♂.	" "
	25.	" <i>brunnescent</i> Rothsch.	♂.	pp. 50, 51
	19.	<i>Anastus hampsoni</i> Rothsch.	♂	p. 52
	26.	" <i>pseudocollaris</i> Rothsch.	♀	p. 53
	20.	<i>Ammalo klagesi</i> Rothsch.	♀	p. 34
	27.	<i>Opharus aurantiacus</i> Rothsch.	♂	p. 47
28,	29.	<i>Automolis pseudoneoides</i> Rothsch.	♂ ♀	p. 24
	30.	<i>Pelochyta affinis</i> Rothsch.	♀. See Ann. Mag. N. H. iv. 1909. p. 210.	
	32.	<i>Buritus flavescens</i> Rothsch.	♂	p. 39
	33.	" <i>veneta</i> Rothsch.	♂	" "
	34.	" <i>schausi</i> Rothsch.	♀	" "





PLATE XIII.

6.	<i>Hyponerita garleppi</i> Rothsch.	♂.	See vol. xvi. p. 299.	
4.	"	<i>ockendeni posterior</i> Rothsch.	♀.	See vol. xvi. p. 298.
5.	"	"	<i>ockendeni</i> Rothsch.	♂.
1.	"	<i>viola borealis</i> Rothsch.	♀ = <i>Veritos tipolis</i> Druce.	" See vol. xvi. p. 298.
3.	<i>Paranerita suffusa suffusa</i> Rothsch.	♂.	See vol. xvi. p. 298.	
2.	"	"	<i>trinitatis</i> Rothsch.	♂.
7.	<i>Neidalia ockendeni</i> Rothsch.	♂	.	p. 6
8.	<i>Prumala palmeri</i> Rothsch.	♂	.	p. 9
9.	<i>Automolis turrupianoides</i> Rothsch.	♂	.	p. 18
10.	"	<i>doguini</i> Rothsch.	♀	p. 19
33.	"	<i>luridoides</i> Rothsch.	♂	"
34.	"	<i>pseudoflavescens</i> Rothsch.	♂	p. 20
35.	"	<i>fenestrata</i> Rothsch.	♂	"
37.	"	<i>dilucida</i> Rothsch.	♂	p. 26
38.	"	<i>ruficauda</i> Rothsch.	♂	"
12.	<i>Halisidota hyalinipuncta</i> Rothsch.	♂	.	p. 56
13.	"	<i>oblonga</i> Rothsch.	♂	p. 65
27.	"	<i>affinis</i> Rothsch.	♂	p. 59
16.	"	<i>minuta</i> Rothsch.	♂	p. 67
19.	"	<i>nonagrioides</i> Rothsch.	♀	p. 64
21.	"	<i>ockendeni</i> Rothsch.	♀	p. 69
25.	"	<i>inexpectata</i> Rothsch.	♂	p. 70
28.	"	<i>nubilosus</i> Rothsch.	♂.	See Ann. Mag. N. H. iv. 1909. p. 222.
31.	"	<i>flavorufa</i> Rothsch.	♂	p. 66
17, 32.	"	<i>walkeri major</i> Rothsch.	♂ ♀ = <i>H. annulosa</i> Walk.	p. 67
18, 30.	"	"	<i>walkeri</i> Rothsch. ♂ ♀ = <i>H. catenulata</i> Hübn. (nec Hampson)	"
11, 26.	"	<i>sobrinoides</i> Rothsch.	♂ ♀ = <i>H. androlepia</i> Dogn.	p. 60
14.	<i>Amastus drucei</i> Rothsch.	♂	.	p. 54
24.	"	<i>palmeri</i> Rothsch.	♂	p. 55
23.	"	<i>rosenbergi</i> Rothsch.	♀	"
20.	"	<i>steinbachi</i> Rothsch.	♂	p. 54
22.	"	<i>doguini</i> Rothsch.	♂	"
29.	"	<i>rufescens</i> Rothsch.	♂	"
15.	<i>Elysia omisus</i> Rothsch.	♂	.	p. 41
36.	<i>Automolis hyalina amaculata</i> Rothsch.	♂	.	p. 23
39, 40.	<i>Melesse chozeba intensa</i> Rothsch.	♂ ♀	.	p. 30
41.	"	<i>erythrastis</i> Dogn.	♂	p. 32
42.	<i>Haemanota cubana</i> Rothsch.	♂ = <i>Veritos sunyuidorsia</i> Schaus	.	p. 35





PLATE XIV.

1.	<i>Halisdota subfasciata</i> Rothsch.	♂	.	.	.	.	.	.	p. 66
2.	" <i>pseudomanda</i> Rothsch.	♂	.	.	.	.	.	.	p. 65
28	" <i>notodontina</i> Rothsch.	♂	.	.	.	.	.	.	p. 188
3.	<i>Euchlaenidia neglecta</i> Rothsch.	♂	.	.	.	.	.	.	p. 75
4.	<i>Holomelina mathani</i> Rothsch.	♀	.	.	.	.	.	.	p. 76
5.	<i>Virbia strigata</i> Rothsch.	♂	.	.	.	.	.	.	p. 78
6.	<i>Epimedia oberthueri</i> Rothsch.	♂	.	.	.	.	.	.	p. 79
7.	<i>Ocnogyna pretiosa alborittata</i> Rothsch.	♂	.	.	.	.	.	.	p. 83
8.	<i>Zatrephes atrata</i> Rothsch.	♂	.	.	.	.	.	.	p. 187
9.	<i>Robinsonia klagesi</i> Rothsch.	♀	.	.	.	.	.	.	"
10.	<i>Automolis fuliginosa</i> Rothsch.	♀	.	.	.	.	.	.	"
11, 34.	<i>Diacrisia raudopolli</i> Rothsch.	♂ ♀	.	.	.	.	.	.	p. 155
14.	" <i>pardalina</i> Rothsch.	♀	.	.	.	.	.	.	p. 128
19.	" <i>buryi</i> Rothsch.	♂	.	.	.	.	.	.	p. 126
29.	" <i>schraderi</i> Rothsch.	♂	.	.	.	.	.	.	p. 128
40.	" <i>irrorata</i> Rothsch.	♂	.	.	.	.	.	.	p. 119
20.	" <i>ockendeni</i> Rothsch.	♀	.	.	.	.	.	.	p. 120
42.	" <i>butti</i> Rothsch.	♂	.	.	.	.	.	.	p. 126
25.	" <i>irregularis</i> Rothsch.	♀	.	.	.	.	.	.	p. 125
21.	" <i>scioana intensa</i> Rothsch.	♀	.	.	.	.	.	.	p. 130
41.	" <i>burmanica</i> Rothsch.	♂	.	.	.	.	.	.	p. 121
12.	<i>Antarctia peruviana</i> Rothsch.	♂	.	.	.	.	.	.	p. 180
15, 24.	" <i>palmeri</i> Rothsch.	♂ ♀	.	.	.	.	.	.	p. 177
17.	" <i>ockendeni</i> Rothsch.	♀	.	.	.	.	.	.	p. 178
18.	" <i>haenschi</i> Rothsch.	♀	.	.	.	.	.	.	p. 179
30, 31.	" <i>virida</i> Rothsch.	♂ ♀	.	.	.	.	.	.	p. 178
26.	" <i>euthocampoides</i> Rothsch.	♂	.	.	.	.	.	.	p. 179
23, 32.	" <i>steinbachi</i> Rothsch.	♂ ♀	.	.	.	.	.	.	"
13.	<i>Elysins strigillata</i> Rothsch.	♂	.	.	.	.	.	.	p. 187
22.	<i>Mullocephala magna</i> Rothsch.	♂	.	.	.	.	.	.	p. 177
16.	" <i>venata</i> Rothsch.	♂ = <i>Maenas surgens</i> Walk.	♂	.	.	.	.	.	"
35.	<i>Ischnocampa pellucida</i> Rothsch.	♂ = <i>Microdota lenistriata</i> Dogn.	♂	.	.	.	.	.	p. 188
27.	<i>Maenas affinis</i> Rothsch.	♀	.	.	.	.	.	.	p. 118
39.	" <i>upsilon</i> Rothsch.	♂	.	.	.	.	.	.	p. 117
37.	<i>Glaucostola underwoodi</i> Rothsch.	♂	.	.	.	.	.	.	p. 187
38.	<i>Phragmatobia fuliginosa pallida</i> Rothsch.	♂	.	.	.	.	.	.	p. 116
33.	" <i>oberthueri</i> Rothsch.	♂	.	.	.	.	.	.	p. 114
36.	<i>Neritos eximius</i> Rothsch.	♂	.	.	.	.	.	.	p. 186





For Explanation of Plate XV, cf. p. 461.





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